MONGOLIA

Disaster Management Reference Handbook

October 2025



CENTER FOR EXCELLENCE IN DISASTER MANAGEMENT & HUMANITARIAN ASSISTANCE
WWW.CFE-DMHA.ORG

Acknowledgements

CFE-DM would like to thank the following people for their knowledge and support in developing this resource:

MSG Eric Kastner, U.S. Army Pacific Civil Affairs Planning Team

Maj. Chelsea Aspelund, State Partnership Program Director, Alaska National Guard

Mr. Nidhirat Srisirirojanakorn, Regional Office for Asia and the Pacific, UN Office for the Coordination of Humanitarian Affairs

Front Cover

Northwestern Mongolia. Photo by Fadhil Abhimantra on Unsplash.com.
https://unsplash.com/photos/horse-rider-overlooks-snowy-mountains-and-plains-qGpfKldqKq0

Disaster Management Reference Handbook Series:

Download books at https://www.cfe-dmha.org/Publications/Disaster-Management-Reference-Handbooks

Disclaimer

This publication has been prepared in good faith based on resources available at the time of production. Information was gathered from the public domain, from local sources, from various governments, and from subject matter experts. Where possible, a link to the original source is provided in the endnote (reference) section at the end of the document. While we have made every attempt to ensure the information is relevant and accurate, the Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) does not guarantee or warrant the accuracy, reliability, completeness, or currency of the information in this publication. Each publication is a working document and will be updated periodically as new and significant information becomes available.

Invitation for Feedback

We hope that you find our publications useful in understanding disaster management and response. We invite your feedback to improve our documents and enhance their future utility.
Please email comments to cfe.dmha.fct@pacom.mil.

Use and Citation

All parts of this publication may be reproduced, stored, and transmitted without the permission of the publisher. Please visit our website to download copies of this publication and other products (https://www.cfe-dmha.org). For the CFE-DM's own tracking purposes, notice to cfe.dmha.fct@pacom.mil with a webpage URL (as available) would be appreciated if this publication is used for any other means. We recommend that information found in this publication refer to the original source, as found in the reference section.

Other references may cite this publication using the following format:
CFE-DM. Title. Year. Date Accessed. URL

Published: October 9, 2025 (20251009v3.0)

ISBN 978-1-955429-69-6

Table of Contents

Acknowledgements **2**

Letter from the Director **6**

About the Center for Excellence in Disaster Management & Humanitarian Assistance **7**

Executive Summary **8**

Country Overview **9**

Geography and Environment 9

Society and Demographics 11

Government 15

Economic Profile 16

Disaster Profile **18**

Hazards 18

Disasters by Numbers 23

Recent Disasters 26

Disaster Management Policy, Planning, and Response **30**

National Disaster Management System 30

Subnational and Local Implementation 33

Civil-Military Coordination in Disaster Response 34

International / Regional Organizations 35

Other Disaster Management Partners 37

Critical Infrastructure for Disaster Management **42**

Transportation 42

Airports 42

Seaports 44

Roads 44

Railways 45

Navigable Waterways 46

Communications 46

Early Warning Systems and Information Sharing 46

Telecommunications Infrastructure 50

Mass and Social Media 51

Utilities 52

Power 52

Water and Sanitation 53

Health Systems 54

Shelter and Housing 55

Food Security 56

Conclusion **58**
Appendices **59**
Risk Indices 59
U.S. Government Disaster Management Engagement 60
U.S. Country Team 61
Responses in the Past Five Years (2020-2025) 62
DoD DM Engagements in the Past Five Years (2020-2025) 63
Additional Resources 68
Acronyms and Abbreviations 70
Endnotes 73

Figures

Figure 1: Topographic Map of Mongolia 9
Figure 2: Mongolia Political and Administrative Map 15
Figure 3: GDP Growth in Mongolia (2020-2024), by Sector 17
Figure 4: Most Common Hazard Events, Mongolia (2000-2025) 24
Figure 5: Hazard Event Incidence by Month, Mongolia (2000-2025) 24
Figure 6: Hazard Events by Province, Mongolia (2000-2025) 25
Figure 7: Hazard Events by Year, Mongolia (2000-2025) 25
Figure 8: Number of People Affected by Hazard Events, by Year, Mongolia (2000-2025) 26
Figure 9: NEMA Organizational Chart 31
Figure 10: Emergency Operations Center Layout 32
Figure 11: Mongolia's Disaster Management System, Simplified Depiction 33
Figure 12: Humanitarian Country Team Coordination Structure in Mongolia 38
Figure 13: Timeline of a Dzud 57
Figure 14: INFORM Risk Country Profile, Mongolia (2025) 60

Photos

Photo 1: Khongor Sand Dunes in the Gobi Desert 10
Photo 2: Herders in the Altai Mountains 13
Photo 3: Ulaanbaatar, Capital of Mongolia 14
Photo 4: Mongolian Woman Tends Her Flock in Khovd Province 29
Photo 5: Mongolian Rescue Personnel in Türkiye (2023) 35
Photo 6: Mongolian Red Cross Staff Conduct Dzud Rapid Needs Assessment 39
Photo 7: Mongolian and U.S. Personnel at Eielson Air Force Base, Alaska 63
Photo 8: PAR25 Participants at the Air Traffic Control Tower at Buyant-Ukhaa Airport 64
Photo 9: Rescue Simulation at Exercise Gobi Wolf 2024 65

Tables

Table 1: Mongolia Airport Profile 43

Letter from the Director

Mongolia's "third neighbor" relationship with the United States (U.S.) has grown steadily stronger in recent decades, and disaster management cooperation remains one of its most visible expressions. The U.S. Department of Defense and Mongolia's armed forces and disaster responders continue to build mutual trust and readiness through direct engagements such as the Gobi Wolf exercise series, which allows participants to rehearse disaster response operations and refine best practices in disaster relief and other humanitarian assistance. Although their character has evolved over time, these engagements demonstrate the enduring commitment of both of our countries to work together in strengthening capacity to address the impacts of natural hazards.

U.S. Indo-Pacific Command regards Mongolia as a valued partner. One of the key aspects of this partnership is the close connection U.S. Army Pacific maintains with Mongolia through the Alaska National Guard via the National Guard Bureau's State Partnership Program. The Center for Excellence in Disaster Management and Humanitarian Assistance (CFE-DM) works to support the partnership through our updated Mongolia Disaster Management Reference Handbook. It is designed to inform U.S. forces, interagency personnel, and international actors who may operate alongside Mongolia's National Emergency Management Agency in preparing for or responding to disasters. It is also intended to help inform future planning and preparedness efforts by ensuring that international engagements build upon a common foundation of knowledge.

CFE-DM intends for this handbook to serve as a useful resource for practitioners and planners alike as they continue the important work of building disaster preparedness and response capacity and interoperability with a valued partner.

Sincerely,

Joseph D. Martin, SES
Director

About the Center for Excellence in Disaster Management & Humanitarian Assistance

Overview

The Center for Excellence in Disaster Management & Humanitarian Assistance (CFE-DM) is a United States (U.S.) Department of Defense (DoD) organization comprised of nearly 30 subject matter experts that provide academic research, civil-military coordination training, and operational insights to support decision making before, during, and after crises. The Center is designed to bridge understanding between humanitarians, civilian, and military responders. CFE-DM partners with a diverse group of governmental and nongovernmental actors, as well as academic institutions to increase collaborations and capabilities in humanitarian assistance and disaster response. While maintaining a global mandate, the Indo-Pacific region is our priority of effort and collaboration is the cornerstone of our operational practice. The Center is a direct reporting unit to U.S. Indo-Pacific Command (USINDOPACOM) and is located on Ford Island, Joint Base Pearl Harbor-Hickam, Hawaii.

Vision

Resilient Joint Forces, Allies, and Partners that are fully prepared to respond across the spectrum of humanitarian crises.

Mission

CFE-DM builds crisis response capacity in US, Allies and Partner militaries across the Indo-Pacific to save lives before, during, and after emergencies.

Contact Information

Center for Excellence in Disaster Management & Humanitarian Assistance
456 Hornet Ave
JBPHH, HI 96860-3503
Telephone: +1 (808) 472-0518
https://www.cfe-dmha.org

EXECUTIVE SUMMARY

The purpose of this handbook is to inform United States (U.S.) military and civilian personnel, as well as international partners and stakeholders, of the hazards to which Mongolia is exposed as well as the country's disaster management (DM) frameworks and capabilities. It is intended to support cooperative efforts in disaster response, risk reduction, planning, and training.

This large, landlocked country is home to a little more than three million people and is, overall, one of the most sparsely populated countries in the world. However, almost half of the population lives in the capital, Ulaanbaatar. This concentration is the result of recent rapid urbanization, which followed the country's 1991 democratization and transition to a market-based economy. Urban populations have also increased due to an influx of former herders who have lost herds in increasingly severe winter conditions.

Mongolia faces a variety of natural hazards, including drought, flooding, wildfires, dust and other storms, earthquakes, and dzud – a unique hazard where summer drought is followed by harsh winter conditions that reduce grazing pastures and drive massive livestock deaths that result in loss of livelihoods and displacement. Over 77% of Mongolia's land is degraded, and a combination of climate change and overgrazing is estimated to be driving about half of total desertification. The country's average temperatures have increased by 2.1°C (3.78°F) over the past 70 years, nearly three times the global rate.[1] Meanwhile, rainfall has declined, and some local streams and lakes are drying up. The consequences of these long-term shifts have become apparent over the last few decades, which have seen more frequent and severe dzuds. Successive dzud losses push former herders to seek economic opportunity in the capital, where they often settle in the outskirts in gers, portable circular felt houses also known by the Turkic term "yurts."[2] Residents of ger areas account for more than half of Ulaanbaatar's population.

As its socio-economic profile and exposure to hazards have shifted, Mongolia has adapted its DM strategy from predominantly focusing on response to a more holistic and systematic approach to disaster risk reduction (DRR), mitigation, and resilience. Its legal foundation is the Law on Disaster Protection (2003, revised 2017), which established the institutional and governance framework for DM and laid the foundation for the 2003 establishment of the National Emergency Management Agency (NEMA). NEMA is the lead institution that coordinates the national framework for disaster prevention and risk management. Responses are carried out under its leadership. Two additional multi-stakeholder bodies that enhance coordination are the National Council for Disaster Risk Reduction (NCDRR), which focuses on DRR, and the State Emergency Commission (SEC), which makes disaster response decisions. The National Programme of Community Participatory Disaster Risk Reduction, which runs 2015-2025, has played a significant role in localizing disaster resilience by involving communities and individuals in activities of disaster prevention, training, and education.

Mongolia is internationally active in various United Nations (UN) institutions and frameworks, and it is a notable troop-contributing country for UN peacekeeping missions. While the Russian Federation and People's Republic of China (PRC) have historically had a large influence on the country, Mongolia also pursues relationships with other countries through its Third Neighbor Policy. The U.S. considers Mongolia an important partner and is a committed "third neighbor," cooperating in various fields including DRR and disaster response. The U.S. armed forces train alongside Mongolia's armed forces and NEMA in the annual Gobi Wolf exercise as well as in other engagements. Mongolia continues to build diverse, international partnerships and collaboration both for DM and for addressing other security threats and challenges.

COUNTRY OVERVIEW

Located in northern Asia, Mongolia is large, landlocked, and sparsely populated. It experiences long winters and short summers, with generally cold and dry weather. Severe weather events have resulted in changes to the livelihoods of Mongolia's traditionally nomadic people, many of whom have been forced to move to urban centers, particularly Ulaanbaatar. As a result, the country's urbanization rate has risen rapidly and brought a shift in socio-economic dynamics for a significant portion of the population. Consequently, many Mongolians are vulnerable to social challenges, the changing environment, and natural hazards. The harsh climate, long distances to rural communities, and issues related to urban sprawl pose significant challenges for DM. Concurrently, Mongolia's government is challenged to sustain progress against poverty even as the economy has continued to grow on the strength of mining and agricultural production.

Geography and Environment

Mongolia is located between Russia to the north and the PRC to the south, east, and west. Extending 2,392 kilometers (km; 1,486 miles [mi]) from east to west and 1,259 km (782 mi) from north to south, Mongolia is the world's second largest landlocked country. Its territory totals 1.56 million km^2 (602,319 mi^2). The border with the PRC runs 4,710 km (2,927 mi), and the northern border with Russia runs 3,543 km (2202 mi).[3]

Figure 1 shows a relief map of Mongolia, as made available by Blue Green Atlas. It shows major population centers and parts of neighboring countries.[4]

The average altitude is 1,580 meters (m; 5,184 feet [ft]) above sea level,[5] and the capital, Ulaanbaatar, is at 1,350 m (4,429 ft), an elevation that contributes to the generally colder climate compared to other countries at the same



Figure 1: Topographic Map of Mongolia

latitude. The highest point in the country is Huiten, 4,374 m (14,350 ft) above sea level; it is located in the Mongolian Altai Mountains in western Mongolia. The lowest point is eastern the Khokh Nuur Depression, which is 532 m (1,745 ft) above sea level[6] and located in the far eastern Dornod Province. Aside from the Mongolian Altai Mountains, the other two major mountain ranges are the Khangai Mountains (Khngain Nuruu) and the Khentii Mountains (Khentiin Nuruu).[7]

Most of the country's central area comprises steppes, which are semiarid grassy plains in temperate climates.[8] The southern portion of the country is taken up by the Gobi Desert, while the northern and western areas are mountainous. Much of the eastern portion is occupied by a plain, and the lowest area is a southwest-to-northeast depression that stretches from the Gobi Desert to the eastern border.

The Gobi Desert covers about one-third of Mongolia and is composed primarily of rocks and cliffs, as well as sand dunes in more arid areas near the southern border. Yet Mongolia also has hundreds of lakes, the largest of which are Lake Uvs at 3,350 km^2 (1,293 mi^2), Lake Khuvsgul at 2,620 km^2 (1,012 mi^2), and Lake Khar Us at 1,852 km^2 (715 mi^2). The longest rivers are the Orkhon at 1,124 km (698 mi), the Kherlen at 1,090 km (677 mi), and the Selenge at 539 km (335 mi), the last of which drains into Lake Baikal in Russia. Other rivers drain north to the Arctic Ocean, east to the Pacific, or into the deserts and depressions of Inner Asia.[9] Photo 1 shows the Khongor sand dunes, commonly known as Duut Mankhan or the Singing Sands, in the Gobi Gurvan Saikhan National Park.[10]

Mongolia experiences all four seasons: spring, summer, autumn, and winter. The weather is generally cold and dry, with long, cold winters and short summers. Most precipitation occurs during the summer. January is the coldest month, and July is the hottest. In January and February, average temperatures of −20°C (-4°F) are common, with winter nights of −40°C (-40°F) occurring most years. Ulaanbaatar experiences an average annual temperature of -1.3°C (29.6°F).[11] The mean temperature is −26°C (−15°F) in January and 17°C (63°F) in July. Summer temperatures can reach as high as 38°C (100.4°F) in the southern Gobi region and 33°C (91.4°F) in Ulaanbaatar. In and between mountain ranges, average temperatures range between −8°C (17.6°F) and −4°C (24.8°F). They hover around 2°C (35.6°F) in the steppe desert region and around 6°C (42.8°F) in the southern desert bordering the PRC. The strongest winds blow in April and May.[12]

The country is known as "the land of the blue sky" because it has some 250 cloudless days each year. Precipitation varies but is typically much lower in the south and central desert and steppe regions. Rainfall ranges from a yearly average of 350 millimeters (mm; 13.78 inches [in]) in the north to 80 mm (3.15 in) in the south, with average annual rainfall measuring 200-220 mm (7.87-8.66 in). In the Gobi Desert, the annual precipitation is only 40 mm (1.57 in). Nationwide, an estimated 85% of precipitation falls between April and September. The country is expected to experience an increase in the intensity of extreme rainfall events.[13]



Photo 1: Khongor Sand Dunes in the Gobi Desert

Environmental Challenges

The air quality in Ulaanbaatar is a concern as it is one of the world's most polluted cities. Urbanization has led to unplanned settlements and increased air, water, and soil pollution. The city's topography exacerbates the situation, as Ulaanbaatar lies in a river valley, and surrounding mountains trap smog. The extreme climate is another major factor, with air pollution at its highest during winter when people burn coal to keep warm.[14] This household practice is common in Mongolia, and half of the population in Ulaanbaatar uses this method to heat gers. Thus, the biggest source of pollution comes from coal-burning stoves in the ger districts during the cold season.[15] Cookstoves also contribute to pollution. From November to April, around 80% of air pollution is caused by burning coal in gers, which are traditional Mongolian circular felt houses that are easily assembled and disassembled.[16]

Environmental degradation has also occurred across Mongolia, but it mostly affects rural communities. The effects have been particularly devastating for herders who have witnessed desertification, overgrazing, and warming that have impacted their livelihoods. There have been changes to 90% of pastureland, with 77.8% of the land affected to some extent by desertification. Meanwhile, livestock numbers have increased, exceeding the capacity of rangelands by 22.6% on average.[17] Warming temperatures have affected agriculture, particularly animal husbandry, and exacerbated water scarcity, land degradation, and the frequency of dzud events.[18]

Society and Demographics

Mongolia's population is sparsely distributed throughout the country. At around 2 people per km^2 (5 people per mi^2), Mongolia is the country with the lowest average population density in the world. Ulaanbaatar and the northern city of Darkhan have the highest population densities.[19] Mongolia's population is around 66% settled and 34% nomadic.[20] The average annual population growth rate is 1.5% (2019-2024).[21]

The estimated population of Mongolia in 2024 stood at 3,281,676 people, of whom 1.67 million people (more than 50%) live in Ulaanbaatar.[22] Among the total population, approximately 1,686,080 people are women (51.4%) and 1,595,596 are men (48.6%). About 70% of the population are under 35 years of age, according to the Government of Mongolia (GoM).[23] Most of the population, or some 68.4% of the population, is 15-64 years old (1,087,487 males and 1,156,547 females).[24] The median age is 28.3 years old; for comparison, the global median age is 31 years.[25] People 65 years of age and older make up around 5.9% of the population (78,242 males and 116,590 females).[26]

The ethnic makeup of Mongolia is approximately 83.8% Khalkh, 3.8% Kazakh, 2.6% Durvud, 2% Bayad, 1.4% Buriad, 1.2% Zakhchin, 1.1% Dariganga, and 0.8% Uriankhai.[27]

The country's official and most widely spoken language is Mongolian (90%), and the Khalka dialect is predominant. Turkic and Russian are also spoken. Buddhism is the main religion, followed by 51.7% of Mongolians. Other religious adherents include 3.2% Muslim, 2.5% Shamanist, 1.3% Christian, and 0.7% other. Some 40.6% of Mongolians follow no religion.[28]

Vulnerable Populations

Among Mongolia's people, there are groups who, because of physical, social, or economic limitations, may experience disproportionate harm during natural hazard events. In Mongolia, these vulnerable populations include people living with disabilities, women, children, elderly citizens, and people living in poverty.

Children – During a disaster, children are often the most vulnerable people in society because they are dependent on others for basic needs and emotional support, as well as being more susceptible to injury. The nutritional status of children affects their resilience to shocks. Annually, more than 7,400 children under the age of 5 years suffer from acute malnutrition in Mongolia, and 1,900 of these children suffer severe acute malnutrition (SAM). According to

the United Nations Children's Fund (UNICEF), a child with SAM is 12 times more likely to die because they are more vulnerable to infectious diseases and complications.[29]

Disasters have devastating consequences for children living in isolated, rural communities. For example, in the dzud of 2010, the infant mortality rate in Zavkhan, the worst-affected province, hit 32.3 per 1,000 live births, compared to the national average of 22.7 per 1,000 live births. Health impacts from the cold and lack of access to health facilities were also a major problem. The dzud left many families without income, and food insecurity rose. Herders' children living away from families were at risk of dropping out of school or leaving school to assist families.

Across Mongolia, many herder childbirths are unregistered. Without registry, these children are left without access to government services. Additionally, children from nomadic backgrounds may face hardships and discrimination when their families migrate to urban centers.[30]

People Living with Disabilities – There are 107,075 people living with disabilities in Mongolia; 61,095 are men, and 45,980 are women. More than 98,000 people living with disabilities are older than 15 years of age, and 31.6% of them, or 31,000 people, are in employment. According to the 2020 Population and Housing Census, around 23.9% of people living with disabilities are permanent workers with salaries, 13% are temporary workers, and 47.3% are running their own businesses without any other workers.[31] Regardless of employment, people living with disabilities often find themselves at a disadvantage when there is a disaster. For instance, emergency shelters commonly are not easily accessible by people living with mobility disabilities, and people with hearing or sight impairments are at a disadvantage when it comes to emergency broadcasts on radio and television.[32]

Displaced Persons – The Internal Displacement Monitoring Centre reports that, between 2008 and 2024, 44,000 people were displaced by natural disasters within Mongolia. The displacements were attributed to drought, wildfires, floods, extreme temperatures, and storms. Most of the displacements were recorded after extreme temperatures (23,000) and floods (18,000). In 2024, an estimated 890 people were internally displaced, with most displaced due to a June 2024 flood in Ulaanbaatar. Wildfires in Dornod, Sukhbaatar, and Khentii in October 2024 also resulted in people being displaced. In April 2025, 436 people were displaced due to a dust storm that destroyed housing in Erdene, Govi-Altai. In March 2025, 77 people were displaced by wildfires in Dornod, Khentii, and Sukhbaatar.[33] Displacements in the wake of a disaster create vulnerabilities among the displaced people because of lost assets, disrupted livelihoods, and removal from communities. Reaching those temporarily displaced by a disaster event can be difficult if there is no plan to address their specific needs, and a failure to address those needs makes people more vulnerable to subsequent hazard events.

Women and Girls – Mongolia's women and girls face unique challenges in the face of natural hazards and disasters due to social and economic factors and their roles in society. This vulnerability is especially high among women from rural or nomadic communities. Gender roles and unequal access to resources, education, the type of work they do, and differing care responsibilities contribute to this vulnerability. There are reportedly disproportionately higher mortality rates among women and girls during disasters in Mongolia. As women earn less than men on average and have less access to land and housing, they may suffer greater economic losses, longer recovery times, and increased home and caring responsibilities after a disaster.

Additionally, the Asian Development Bank (ADB) notes that there are concerns over the persistence of gender-based violence, which heightens vulnerability. Violence against women impedes women's social and economic capacity to either reduce their risk or build their ability to respond to and recover from disasters. The ADB separately points out the need to systematically analyze sex-disaggregated data in the country

to better understand disaster risk and impacts on genders to assist in policy and decision making.[34]

Herders – Many of Mongolia's communities are traditionally nomadic pastoralists, or herders. Due to increasingly extreme seasonal changes, Mongolia's agriculture industry is highly vulnerable to impacts on livestock and agriculture. Changes to the environment, natural hazards, and disasters contribute to the overall vulnerability of herder populations. Many herders practice otor, a traditional migration strategy employed to escape harsh weather conditions in the winter. The presence of aging and disabled populations among herders can make any migratory moves challenging as a lack of support in moving livestock means many herder families are unable to leave harsh conditions.[35]

Herders comprise at least 21.4% of the total population; some estimates say they are more than 30% of the total population and 53% of the rural population. Improved market access and rising livestock prices have seen many herders escape poverty; however, more than 27.7% of them remain poor. As livelihoods are heavily dependent on livestock, herders are susceptible to natural hazards. Pastoral degradation is also a concern.[36] Livestock losses threaten income and food. Thus, disasters have significant social, health, and economic impacts on the herder population. With insufficient livestock, many herders are forced to leave the countryside to live in informal ger settlements outside of urban areas. Because of low registration rates and birth and lack of access to government offices, many herders lack national identity cards that allow access to health and educational services.[37]

Young and female herders are especially vulnerable. Children from herder families usually attend school in towns, which are generally far from their homes, and they stay in dormitories during the school year. Due to the livelihood struggles for herders, their families' educational outcomes are often not good, and boys frequently drop out to help their families. The GoM is assisting to combat these challenges by constructing more dormitories, introducing mobile teachers, improving the salaries and benefits for rural teachers, and adjusting curricula. Only 39.9% of herders are women, and the percentage of young herders is even lower. Herder women often suffer from domestic violence, and the incidence of sexual violence against young girls is increasing, but they do not have ready access to services for protection, according to the Ministry of Labor and Social Protection.[38] Photo 2 depicts herders milking a yak in the Altai Mountains of Mongolia.[39]

Urbanization and Migration – Many Mongolians, in particular former herder families, have moved to urban centers. According to a report by the World Bank, dzud has contributed to "distress migration" from rural areas to cities as herders face the challenges of loss of livestock and pastureland. More than 60,000 people migrate to Ulaanbaatar each year, according to the GoM.[40] Mongolia has a generous land allocation law, where citizens can claim 700 m^2 (7,534 ft^2) of land for residential use in and around the capital. This possibility has added to the lure of migration and growth of the settlements. Migrants are more vulnerable to air pollution and the impacts



Photo 2: Herders in the Altai Mountains

of flooding in the settlement areas.[41]

Migration has led to the formation of large informal ger settlements on city outskirts, especially in Ulaanbaatar. Many herders migrate to these settlements, which are crowded and polluted and have inadequate infrastructure and limited services.[42] These circumstances alongside a transition in lifestyles and livelihoods have presented many challenges.[43]

Among the major impacts of urbanization is air pollution, which is measured in particulate matter (PM), which describes any substance in the air which is not gas. Fine particulate matter (PM2.5, which is less than 2.5 micrometers in diameter) poses the greatest risk to health globally. On the coldest days in Mongolia, the daily average of PM2.5 pollution levels reach 687 micrograms per cubic meter, which is 27 times the level the World Health Organization (WHO) deems safe. During the winter months (November to March), the mean concentration of particulate matter is 8-14 times higher than WHO guidelines. The largest contributor to PM2.5 is coal and biomass combustion for heating in households.[44]

Exposure to pollution will increase and lead to potentially significant health consequences for urban dwellers, particularly as pollution is linked with diseases such as bronchitis and asthma. Over the last 10 years, the incidence of respiratory diseases in Ulaanbaatar increased nearly threefold.[45] Ger households, where the poorest and most vulnerable reside, are the main source of air pollution and associated casualties in Ulaanbaatar.[46] Children, pregnant women and the elderly are the most negatively impacted, although the smog affects the entire population.[47]

Photo 3 depicts Ulaanbaatar at sunset.[48]

People Living in Poverty – Poverty remains a key socioeconomic issue in Mongolia. In the past decade, the poverty rate has decreased, albeit more slowly than the rate of reduction seen during the country's 2010-2014 economic boom. Rural poverty has declined more rapidly than urban poverty but is still higher than the national average at 30.8%,[49] while urban areas see a poverty rate of around 27.2%.[50] Poor populations experience obstacles accessing basic services such as sanitation and heating sources. This struggle is particularly acute for ger dwellers in urban areas and people in remote areas, especially in Khangai and western parts of the country.[51]

Disasters disproportionately affect poor populations who do not have the necessary resources to prepare for or cope in the aftermath of a disaster. People living in poverty often lack information or resources for effective disaster preparation or recovery. They are often forced to resort to negative coping strategies, such as reducing food consumption, selling assets, and borrowing money from informal sources that keep them in a cycle of poverty. Within this group, young children and pregnant women are particularly vulnerable. Several provinces with high rates of natural hazard exposure also have high rates of poverty and economic vulnerability. Selenge, Bulgan, Tuv, and



Photo 3: Ulaanbaatar, Capital of Mongolia

Khentii Provinces have populations where over half are poor or vulnerable to poverty and face high hazard exposure.[52] Additionally, about 15% of the population falls just above the poverty line, and this group is also vulnerable to any unexpected shock.[53] Disasters have pushed populations into poverty during past events. For instance, following three dzuds between 1999 and 2002, herders lost 25% of the country's livestock, with some 11 million head of livestock lost. At least 12,000 families lost their entire herds, and thousands of others fell into poverty.[54]

Government

Mongolia is divided into four regions (Western, Khangai, Central, and Eastern), and it is administratively organized into 21 aimags (provinces).

Each region includes the following aimags:

- Western: Bayan-Ulgii, Govi-Altai, Zavkhan, Uvs, and Khovd
- Khangai: Arkhangai, Bayankhongor, Bulgan, Orkhon, Uvurkhangai, and Khuvsgul
- Central: Govisumber, Darkhan-Uul, Dornogovi, Dundgovi, Umnugovi, Selenge, and Tuv
- Eastern: Dornod, Sukhbaatar, and Khentii

Aimags are further divided into soums (district) and baghs (subdistricts).[55] The provinces are headed by governors, who are appointed by the prime minister.[56]

Figure 2 shows a Reference Map from the UN Office for the Coordination of Humanitarian Affairs (OCHA); it depicts aimag (province) and soum (district) administrative boundaries.[57]

The capital, Ulaanbaatar, has an independent administrative status as a municipality and consists of several urban districts. The governor is also mayor of the city.[58] Ulaanbaatar is subdivided into nine duuregs (municipal

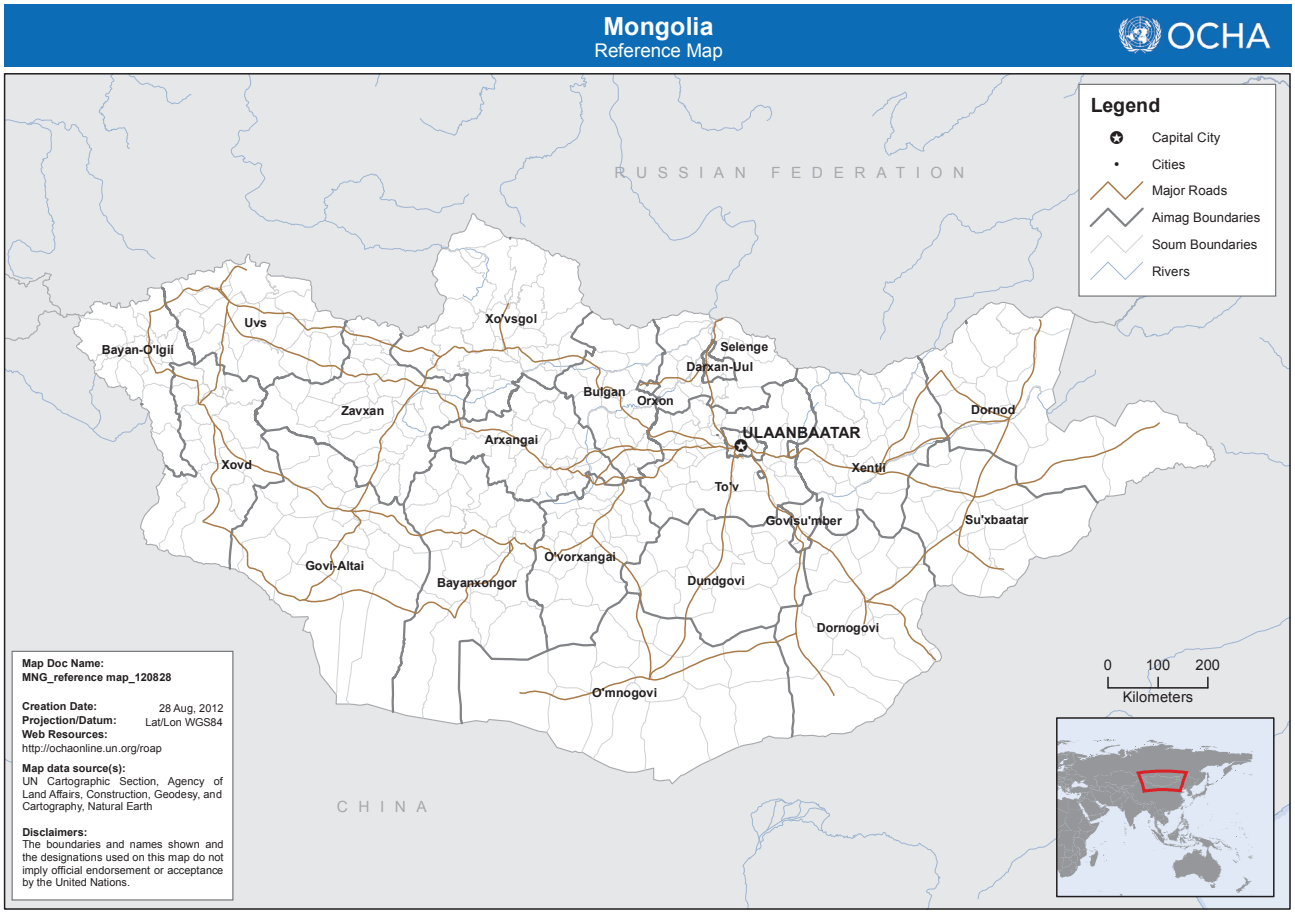


Figure 2: Mongolia Political and Administrative Map

districts) and 121 khoroos, the smallest administrative units in the capital.

Outside the capital, there are 331 soums and 1,550 baghs. The aimag center is the administrative seat of local government. In aimag centers, most residents work in light industry, services, and small business. Baghs tend to have populations who work in agricultural and animal husbandry, lead a nomadic life, and migrate with their herds depending on the season and weather conditions. Typically, seasonal camps are located within the borders of home soums and baghs, though natural hazards can force them to move to different areas.

Mongolia is a parliamentary republic, and the president is directly elected. The people also elect deputies to the national assembly, called the State Great Khural, which chooses the prime minister. The prime minister nominates the Cabinet in consultation with the president. The State Great Khural is Mongolia's unicameral parliament. It is comprised of 76 seats, with members elected for 4-year terms.[59] Local assembly (khural) chairs are also elected in local government elections every four years.[60]

In aimags, the capital city, soums, and duuregs, there are khurals of representatives of the citizens of respective territories. In baghs and khoroos, there are general meetings of citizens. Khurals consider and decide on local problems. In aimags and the capital city, khurals are composed of 5-9 members, whereas in soums and duuregs, there are 5-7 members. In baghs and khoroos, general meetings generally have 3-5 members. Regular meetings of the khurals are convened annually, and general meetings of baghs and khoroos are convened less than twice a year.[61]

Economic Profile

Mongolia frequently experiences weather-related disruptions to agriculture and herding. Successive economic policies have emphasized steady growth in the mining and services sectors to diversify the suite of products upon which revenue relies and to ensure that the Mongolian workforce has opportunities beyond traditional herding livelihoods. The long-term challenge of these policies is twofold: mining can impact the natural environment in nefarious ways and rural-to-urban migration swells Ulaanbaatar's unplanned and vulnerable settlements.

Since its transition away from a command economy in the early 1990s, Mongolia has cut poverty rates and tripled its gross domestic product (GDP) per capita. In 2024, it joined the ranks of the World Bank's "upper-middle income" countries,[62] defined as having a gross national income (GNI) per capita of between US$4,516 and US$14,005.[63] As of 2023, Mongolia's GNI per capita had topped US$4,870.[64] In 2022, the World Bank estimated that 27.1% of the population lived in poverty (on less than US$3.65 per day in 2017 U.S. dollars).[65] The key to building on poverty reduction is linked to broader labor market participation, especially among women, younger workers, and rural residents, but promoting workforce entry of these groups requires targeted policies – education, child care, transportation, etc.

In 2024, the country's GDP grew by 4.9%, roughly on par with its long-term average. The ADB assesses that the overall Mongolian economy remains poised for moderate growth in the short term, but questions remain about long-term resilience to shocks – e.g., commodity price swings or climate-related disruptions to agriculture.[66] One of the major drags on growth in 2024 was the 2023-2024 dzud that killed millions of head of livestock. In 2024, more than 8 million head of livestock perished; when that number is added to livestock loss in late 2023, an estimated 12.6% of the national herd was lost in that dzud.[67] The ADB estimated that these losses drove a contraction in the agriculture sector of more than 28%, which deducted 3.6% from overall growth. Figure 3 shows the sharp contraction in agriculture as well as the steady strong growth in services, complemented by growth in mining.[68]

The mining sector is the engine of the national economy. In 2023, it accounted for more than 28% of GDP and more than 92% of exports.[69] The PRC takes more than 80% of

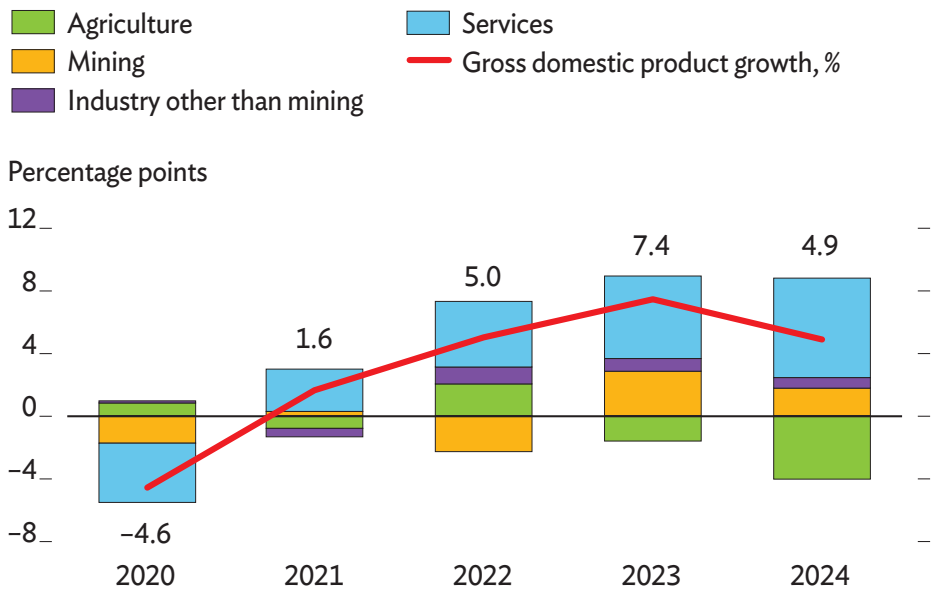


Figure 3: GDP Growth in Mongolia (2020-2024), by Sector

Mongolia's exports,[70] and Chinese demand for Mongolia's coal and copper drives Mongolia's export revenue.[71] Meanwhile, mining jobs number approximately 133,000 – 11% of jobs economy-wide - across all scales of mining, from large corporate enterprises to artisanal operations.[72]

Ensuring that the skills needed for modern mining are available in the local workforce has proven challenging. To ensure that Mongolians have the technical and business skills to fill open positions rather than mining companies importing workers, the government and development partners have built mine-linked training and research facilities.[73] The ability of local workers to become the managerial and technical class is considered a priority as they will also be the class that is invested in averting the direct environmental impacts of mining – e.g., depleted water reserves, soil erosion, and loss of grazing lands for the traditionally nomadic residents.

Agriculture – including animal husbandry – employs nearly 28% of working Mongolians, and herds are the sole livelihood source for nearly two-thirds of rural households. Nonetheless, agriculture contributes less than 10% of GDP, and the major revenue-producing sub-sectors are related to cashmere production and meat products.[74]

The country's natural environment poses a fundamental constraint on the long-term viability of the agricultural sector. Low annual precipitation and extreme seasonal temperature variations limit herd size. However, rising global demand for cashmere and meat has fueled unregulated herd expansion, leading to severe overgrazing. The consequent environmental degradation is further compounded by the mining industry's excessive extraction of water. As a result, many rural Mongolians face a stark choice: remain in economically marginal pastoral livelihoods or migrate to Ulaanbaatar in search of alternative opportunities.[75]

Under the Vision 2050 long-term development plan, the country committed to reforms to continue poverty reduction, bolster gender equality, diversify the economy, and make the transition to a "green" economy. A key target is to reduce reliance on exports of unprocessed minerals by shifting toward more manufacturing, services (logistics, tourism, and the arts), and value-added processing of minerals and agricultural products. However, the economic damage of the Coronavirus Disease 2019 (COVID-19) pandemic necessitated a revised medium-term strategy to address losses.[76] The 2024-2028 plan emphasizes large-scale infrastructure projects, primarily cross-border transportation and power generation intended to boost mineral export revenues and expand domestic electricity access.[77] While these initiatives aim to stimulate economic growth, they risk increasing reliance on coal and worsening already prevalent air pollution.

DISASTER PROFILE

Mongolia faces significant exposure to natural hazards, including drought, dzud (harsh winters following summer droughts that lead to mass livestock fatalities), dust storms, earthquakes, epidemic disease, extreme temperatures, flooding, and wildfires. Over recent decades, meteorological events like storms and temperature extremes have comprised the majority of recorded disasters. Dzud represents Mongolia's most devastating recurring hazard, with severe events killing substantial portions of the national herd and affecting vast areas of territory. While flooding events are less frequent, they increasingly impact densely populated areas. Human casualties from most events tend to be relatively low due to sparse population density, but economic losses to livestock-dependent communities can be catastrophic. Recovery often takes years and, in some extreme cases, is never complete.

Hazards

Mongolia's vast territory experiences varying levels of exposure to natural and anthropogenic hazards shaped by the extreme continental climate and diverse geography. Compound climate events like dzuds and extreme temperature variations pose widespread threats, while earthquake risks are concentrated along active fault systems. The threat level from dust storms and desertification is highest in southern desert regions, whereas flooding risks cluster in north-central river basins and urban areas. Wildfire and drought hazards are broadly distributed across the steppe and forest ecosystems, and epidemic disease risks are elevated in areas of close human-livestock interaction and dense urban settlements.

Blizzards and Winter Storms

Mongolia is regularly impacted by severe winter storms (blizzards), which occur mainly between September and May and can last from a few hours up to 10 days. On average, only a handful of blizzard days are recorded per year. Blizzards bring heavy snowfall and intense winds, making them extremely dangerous. Such storms pose a serious threat to herders and livestock; a single major blizzard can claim dozens of human lives and kill tens of thousands of animals. A spring blizzard in 1993 caused around 16 human fatalities but killed 100,000 head of livestock.[78]

Drought

Mongolia faces escalating drought risk that threatens the sustainability of its pastoral economy, accelerates rural-to-urban migration, and undermines national food and water security. Over 70% of pastureland is now degraded, and more than 40% of the country experienced drought in 2023.[79] Mongolia's increasing vulnerability stems from a combination of climate change – rising temperatures, reduced precipitation, and more frequent extreme weather – and land mismanagement, including overgrazing and mining. Together, these factors erode soil health and vegetation cover, particularly in arid and semiarid regions. An estimated 90% of the country's land is at risk of desertification, with over 41% already classified as desert or desert-steppe.[80] These conditions intensify the impacts of prolonged dry periods on ecosystems, livelihoods, and national resilience.

The 2000–2010 drought, Mongolia's worst in modern history, led to mass livestock loss and large-scale displacement of herders to Ulaanbaatar. Tree-ring records suggest it was a once-in-a-millennium event, but climate models project such droughts could become far more frequent. Intergovernmental Panel on Climate Change scenarios estimate a 5–15% increase in drought frequency by mid-century, and one global study suggests that in a world that is 2°C (3.6°F) warmer, once-in-a-century droughts may occur every 40 years.[81] Compounding the risk are dzuds that routinely devastate livestock and herder livelihoods, pushing vulnerable communities deeper into crisis.

Dust Storms / Sandstorms

The Gobi Desert, covering 40-45% of Mongolia's land area, experiences frequent dust and sandstorms, and the annual number of dusty days has risen sharply over recent decades.[82] During the 1960s, Mongolia experienced an average of just 18 dust-storm days per year, but that number climbed to nearly 60 days per year by the late 1990s.[83] In recent decades, the southern regions routinely experience 20–30 sandstorms annually, and drifting dust is reported 30–60 days per year across the southern and southwestern provinces.[84] These storms typically occur during spring, when strong winds and dry soil conditions are intensified by low precipitation.

In addition to the rising number of dust and sandstorms, the severity of dust storms has worsened, with the 2021 season among the worst in recent memory. That year's storms killed approximately 1.6 million head of livestock and contributed to widespread cases of respiratory illnesses among humans in addition to disrupting transportation.[85] Changes in the climate and desertification are key drivers, intensified by human activities like overgrazing. Over the past three decades, the national herd has tripled in size, with the number of goats increasing the fastest. Though they consume twice as much grass as sheep, goats are highly valued, as Mongolia produces 40% of the world's cashmere.[86] To combat these threats, Mongolia has implemented large-scale reforestation programs, including the "One Billion Trees" initiative, aiming to curb desertification and reduce dust storm impacts.[87]

"Mongolian cyclones" (completely different from tropical cyclones) are weather systems that drive most of the dust storms across Asia. Recent scientific research has pinpointed exactly how important these cyclones are in creating dust storms. Powerful, long-lasting, low-pressure systems form when air flows over the Altai-Sayan Mountains and creates swirling wind patterns on the other side. Scientists have discovered that these cyclones may be responsible for 47% of all the dust blown out of the Gobi Desert.[88]

Dzud

Mongolia is highly vulnerable to dzud – a cyclical, slow-onset disaster unique to the region. These compound climate events occur when a dry summer leaves livestock weakened and pastures degraded and is then followed by a harsh winter marked by freezing temperatures, heavy snow, high winds, or frozen ground that prevents livestock from grazing. As fodder supplies dwindle and animals weaken, mass livestock mortality often occurs, typically peaking in the spring. Dzuds used to occur in Mongolia about once every decade, but there have been six in the past 10 years.[89]

The most recent severe dzud occurred in 2023-2024, where Mongolia saw the highest snowfall recorded in the last 49 years. At its peak, the dzud affected 90% of Mongolia's territory and killed 10% of the national herd, more than 7.1 million head of livestock, by June 2024.[90] Previously, the 2009–2010 dzud killed approximately 9.7 million head of livestock, 22% of the national herd, and affected 220,000 households, including more than 44,000 who lost their entire herds.[91]

These natural hazards are intensified by human activities such as overgrazing, particularly by goats raised for cashmere. Overgrazing transforms summer pastures into drought-like conditions with scarce grasses, and the result is malnourished livestock, which are vulnerable when harsh winter weather arrives.[92] Pasture degradation from herd mismanagement has reduced ecosystem resilience and recovery potential.[93]

These compound climate events severely disrupt the traditional pastoralist economy and drive nomadic herders to migrate into urban informal settlements. Herding accounts for roughly 80% of Mongolia's agricultural sector, which contributes about 10% of GDP and employs over one-quarter of the workforce.[94] As herders lose their livelihoods, many are forced to migrate to Ulaanbaatar's informal ger districts, where infrastructure is already under strain.

Earthquakes

Mongolia faces a significant earthquake hazard, with studies estimating over a 20% probability of a damaging earthquake occurring within the next 50 years.[95] Over the past century, Mongolia has experienced four earthquakes of magnitude 8.0 or greater. In the past 10 years, 380 earthquakes of magnitude 4.0 or higher occurred within a 300 km (186 mi) range within or around Mongolia. The average is 38 earthquakes yearly, or 1 earthquake every 10 days.[96] Smaller magnitude tremors are frequent; for instance, in the first half of 2021 alone, more than 240 earthquakes registering magnitude 3.5 or higher were recorded.[97]

While Mongolia is susceptible to seismic activity, many major earthquakes – e.g., the 1957 Gobi–Altai event – struck sparsely populated regions and, therefore, caused limited casualties.[98] Many rural residents live in gers, which are flexible and may be resilient against earthquake shaking. However, assessments differ; the World Bank notes that up to 80% of housing stock in ger areas could be vulnerable to damage or destruction in a major earthquake, but the CAREC Program's Mongolia Country Risk Profile notes that "ger housing … suffers negligible damage during earthquakes."[99]

Recent research has revealed heightened seismic risks within Ulaanbaatar. Previously considered a low-risk area, the discovery of the Ulaanbaatar Fault – an active, 50-km (31-mi) fault bisecting the urban area – has shifted risk assessments.[100] This fault is capable of generating earthquakes exceeding magnitude 7.0, which could inflict substantial structural damage and cause significant casualties in the metropolitan region.[101] The risk is further exacerbated by the prevalence of older buildings lacking seismic design standards; these buildings include many public schools constructed with unreinforced masonry and precast concrete floors without proper reinforcement. Meanwhile, Mongolia's NEMA has increased public awareness campaigns and emergency drills to bolster preparedness.[102]

Epidemic Disease / Animal Disease

Mongolia faces persistent risks from zoonotic and other infectious diseases due to its extensive pastoralist practices, close human-livestock-wildlife interactions, and rapidly expanding urban settlements. Over 30 of the more than 200 globally known zoonoses have been documented in the country; they include plague, anthrax, rabies, brucellosis, and tick-borne encephalitis.[103] The bubonic plague remains endemic, with transmission often linked to the handling or consumption of marmots. In 2023, a confirmed case of plague related to marmot meat consumption was reported in Ulaanbaatar.[104] The National Center for Zoonotic Diseases (NCZD) has identified 137 natural plague foci across 17 provinces.[105]

Anthrax and rabies continue to pose threats in both humans and livestock, with rabies reported in every province. Rabies in Mongolia is primarily transmitted by wildlife and domestic dogs.[106] The risk of transmission is compounded during extreme weather disasters, when mass livestock die-offs overwhelm local capacity. Improper or delayed handling, removal, and disposal of carcasses can create a breeding ground for infectious agents. Decomposing remains pose a particular threat of disease transmission to both humans and animals, especially for diseases like anthrax and brucellosis.[107]

Mongolia has also experienced significant non-zoonotic outbreaks. In 2008, there was a major epidemic of Hand, Foot, and Mouth Disease (HFMD), with nearly 2,000 cases, mostly among people under 20 years of age. HFMD continues to pose a seasonal risk in densely populated areas. Outbreaks of measles, anthrax, and plague have been further exacerbated by overcrowded conditions, weak surveillance systems, and gaps in public health infrastructure. They disproportionately affect vulnerable populations in both urban and rural areas.[108]

The NCZD, established in 2012, coordinates disease surveillance, prevention, and rapid response operations. In collaboration with the

WHO and international partners, Mongolia is working to strengthen its early warning systems, veterinary-public health coordination, and outbreak preparedness.[109]

Extreme Temperatures

Mongolia is experiencing a marked rise in extreme heat events, driven by one of the highest rates of warming in the world. Since the 1940s, the country's average annual air temperature has increased by approximately 2.1°C (3.78°F), a rise that has led to more frequent heatwaves, widespread environmental stress, and growing risks to public health, infrastructure, and rural livelihoods.[110] Between 1981 and 2020, the frequency of extreme temperature events – measured using the World Meteorological Organization's summer days, warm days, and warm nights indicators – has increased across the Mongolian Plateau. Central Mongolia, in particular, has seen a significant upward trend in extreme heat events.[111]

Climate projections suggest a sharp increase in the number of days exceeding 30°C (86°F) under high-emission scenarios by the end of the century.[112] These extreme temperatures exacerbate other climate hazards, including pasture degradation, desertification, and dzud. In urban areas like Ulaanbaatar, intensifying heat contributes to urban heat island effects – the phenomenon in which urban or developed areas experience significantly higher temperatures than surrounding rural areas due to the concentration of heat-absorbing surfaces, reduced vegetation, and anthropogenic heat emissions, thereby altering local climate and energy dynamics. This effect places additional pressure on energy systems and health infrastructure.[113]

Conversely, Mongolia experiences some of the coldest temperatures in the world, with winter lows frequently plunging below –40°C (-40°F). Between 2000 and 2016, extreme cold hit Mongolia 28% more often than it did from 1981 to 1999, according to one study.[114] Mongolia has also seen a marked uptick in winter snow, which has increased by 40%, on average, since 1961.[115] The added snow cover has a cooling effect, making extreme cold more likely. In December 2023, Tes soum in Zavkhan Province recorded temperatures of –46.2°C (-51.16°F), and in January 2025, Otgon soum in the same province hit –44.4°C (-47.92°F).[116]

Flooding

Mongolia faces escalating flood risk that reflects the complex intersection of rapid urbanization, extreme weather variability, and inadequate infrastructure. Over the past decade, flooding has emerged as a particularly devastating hazard that strikes with increasing frequency and intensity.[117] The cost of floods is considerable in both financial and human terms. The country's average annual loss from floods is estimated at US$24 million. Beyond economic damage, floods claim an estimated 92 lives each year across Mongolia.[118]

Rainfall-induced (pluvial) flooding is the most common flooding type across the country. It impacts both rural and urban areas.[119] Rapid urban expansion, particularly in Ulaanbaatar's informal ger districts, has occurred largely without formal land-use planning or floodplain regulation. These settlements, home to roughly 60% of the city's population, are often situated in high-risk flood zones and lack formal drainage infrastructure. This unchecked growth not only heightens physical exposure to flood hazards but also complicates emergency response and evacuation efforts.

Flash floods are especially common in the narrow valleys to the east and west of the capital, as well as in low-lying areas near the Selbe River in the urban core. Other flood-prone zones are characterized by degraded soils, elevated evapotranspiration, and intense but short-lived summer rainfall. A major urban flood in 1966 caused significant damage, but the city's population at the time was approximately 200,000, whereas it is estimated to have increased ninefold since then, to around 1.9 million people.[120]

When flooding occurs in high-density ger areas, the public health risks are severe. Although gers are considered sustainable and appropriate for nomadic life, their use in unplanned urban settlements presents critical

sanitation challenges.[121] Nearly 95% of ger households rely on on-site pit latrines and dispose of greywater into streets or informal pits.[122] During heavy rains or floods, these systems frequently overflow, contaminating surrounding areas and increasing the spread of Water, Sanitation, and Hygiene (WASH)-related diseases. They include waterborne, water-washed, water-based, and water-related vector-borne diseases, with diarrheal illnesses being a leading cause of death, especially in young children. Flooding often causes contaminated water, greywater runoff, and waste from open dumpsites to mix with surface water, a mixture that poses long-term risks to groundwater and environmental health.[123]

In July 2023, following record-breaking rainfall, Ulaanbaatar experienced its most severe flooding in 50 years. More than 128,000 people across 31,600 households were affected, and 20,000 were displaced.[124] The city's aging infrastructure, particularly in districts lacking proper drainage, proved highly vulnerable. The GoM declared a high alert, and national response units, including the Mongolian Armed Forces, were deployed to support evacuations and humanitarian assistance.

Critical infrastructure such as transportation corridors, energy facilities, and communication lines are also exposed to flood risks, particularly in and around Ulaanbaatar and key mining regions. Damage to these systems could severely disrupt logistics, mobility, and emergency operations. To enhance flood resilience, UN-Habitat and World Vision Mongolia have partnered with the government to implement flood protection projects in ger districts. These efforts contribute to broader DRR strategies and offer opportunities for coordination with international partners on DM planning.[125]

Storms

Hailstorms occur frequently during the Mongolian summer and can cause considerable damage, especially in the country's mountainous and agricultural regions. For instance, in 1994, a series of severe hail events destroyed the harvest across more than 23,000 hectares (ha; 56,800 acres) of prime farmland in northern Mongolia.[126] Lightning often accompanies these convective storms, and Mongolia experiences an unusually high incidence of lightning fatalities (about 15.4 deaths per 10 million people each year, far above rates in other countries with similar lightning activity). Most lightning strikes occur from May to August (peaking in July) and are concentrated in central Mongolia. In fact, lightning is the second leading cause of convective storm–related human and animal death nationwide (ranked just below the most severe wind or thunderstorm events).[127]

Mongolia experiences "Mongolian cyclones," which are powerful weather systems similar to the storms that bring winter weather across much of the northern hemisphere. These storm systems form in the atmosphere when air masses of different temperatures collide, driven by high-altitude wind currents (jet stream). These weather systems tend to develop on the downwind side of mountain ranges, especially the Altai-Sayan Mountains that stretch across Central Asia. They are called "Mongolian cyclones" because they frequently form in or track through the Mongolian region as they move across the continent.[128]

Wildfire

Wildfires pose a major threat to Mongolia, where dangerous fire weather conditions occur in over 50% of years and create significant risks to lives and property.[129] From 2000 through 2019, Mongolia recorded an average of 132.6 fires annually.[130] However, when examining natural hazard data over a longer timeframe (1980–2020), wildfires accounted for approximately 9% of all natural hazard events, an indication of variability across years.[131] Low population density and the limited resources of sparsely settled households in remote areas make it difficult to quickly detect and respond to fires, and these factors may signal underreporting in the data.

Given Mongolia's vast territory and limited firefighting resources, emergency responders often cannot reach fire outbreaks quickly

enough to prevent significant damage. To address this challenge, Mongolia's Fire Safety Law of 2015 empowers local citizens to voluntarily assist in firefighting efforts when professional responders are unavailable.

Mongolia experiences two distinct wildfire seasons driven by weather patterns: spring and fall. From March to June, strong, dry winds, sometimes severe enough to disrupt inbound air traffic to Ulaanbaatar, elevate fire risk by rapidly drying out residual dead grass from the previous season. Summer rains, while limited, promote new grass growth that subsequently dries during September and October and creates additional fuel for fires. Winter conditions are typically cold and dry, reducing fire activity. The majority of wildfires occur in the grasslands and grass understory of the steppe and mountain steppe ecosystems, areas that cover large portions of Mongolia's landscape.[132]

Approximately 95% of steppe and forest fires in Mongolia are caused by human activity.[133] While fire suppression is a common practice to protect livelihoods and infrastructure, it can disrupt natural fire cycles essential for maintaining grassland health and biodiversity. Steppe grasslands are fire-dependent ecosystems, requiring periodic burns to rejuvenate vegetation and maintain ecological balance.[134]

Increased wildfire activity, particularly in permafrost regions, poses additional environmental challenges. Fires can alter hydrological regimes by degrading permafrost and leading to reduced water retention in soils.[135] This degradation affects water availability for both ecosystems and human use, especially in the northwest regions of the country. Furthermore, climate change is expected to exacerbate these issues by increasing the frequency and intensity of wildfires, thereby impacting Mongolia's ecological stability and water resources.[136]

Disasters by Numbers

The following assessment of data is intended to support planning for potential disaster responses by characterizing the most common types of hazard events, in what time of year they cluster, where their impacts are felt, and whether they are becoming more or less frequent or severe.

The assessments in this section are based on a dataset from the Centre for Research on Epidemiology of Disasters (CRED) international disaster database (EM-DAT). The dataset includes disasters in Mongolia for the period 2000 through 2025 (May). The data in the EM-DAT do contrast with those of Mongolia's National Statistics Office (NSO). While the EM-DAT recorded 33 disaster events between 2000 and May 2025, the NSO recorded 4,200 natural disaster events between 2009 and 2019. Of the NSO's recorded events, more than 2,000 were forest fires or wildfires,[137] whereas the EM-DAT records only one wildfire event (associated with a 2-year drought) over the 25-year period of its dataset.

Different methodologies for recording disaster events are used for differing purposes, and they support findings with varying nuances. The NSO cites Mongolia's NEMA, which defines a disaster as "serious disruption of a community or a society involving widespread losses of human and/or animals' lives, economic and environment losses and impacts, which exceeds national and local resources to cope using its own resources."[138] The EM-DAT classifies disasters as events resulting in 10 or more deaths, affecting 100 or more people, or triggering a declared state of emergency.[139] The EM-DAT dataset was selected for use in this assessment based on its consistency with international organizations' practices for recording disaster events and their impacts across time and countries. As this publication focuses on the potential involvement of foreign military assets in a disaster response within Mongolia, the publisher has chosen the EM-DAT dataset on the conclusion that any event that triggers foreign military assets' participation in a disaster response will, legally and logically, have a large-scale impact – i.e., loss of or disruption to human lives – and result in a request for international assistance from the Mongolian government, with whom foreign

governments will cooperate to deliver requested relief.

For the period 2000 through 2025 (May), the EM-DAT recorded 33 disaster events in Mongolia. Of the total, 31 were linked to natural hazards, while two (both helicopter crashes) were anthropogenic or technological. Of the natural hazard events, 12 were hydrological – floods and avalanches – while 17 were meteorological – storms and extreme temperature waves. Figure 4 illustrates the dominance of flooding, storms, and temperature extremes among the disaster events in Mongolia in the past 25 years.

Of note, the EM-DAT dataset explicitly includes three dzud events – 2002-2003, 2018, and 2023-2024; they are categorized as "storm" – 2002-2003 and 2023-2024 – and "extreme temperature" - 2018. The NSO data for dzud since 2000 note five dzuds – 1999-2002, 2009-2010, 2016, 2022-2023, and 2023-2024. The NSO highlights these disasters because of their widespread and lingering impacts – i.e., they disrupt millions of lives, and rebuilding livelihoods requires years of work. The five dzuds in the NSO reporting killed upwards of 64 million head of livestock.[140] Meanwhile, by the EM-DAT's accounting, the 2002-2003, 2018, and 2023-2024 dzuds affected upward of 1.5 million people.

The major hazard events do tend to cluster seasonally, with flooding in June, July, and August. Extreme cold snaps and storms tend to cluster in the winter months (November-January), although they can occur throughout much of the year. Figure 5 shows this seasonality. Only the month in which the event started is used to graph the seasonality of events; extreme temperature snaps and dzuds can last several months.

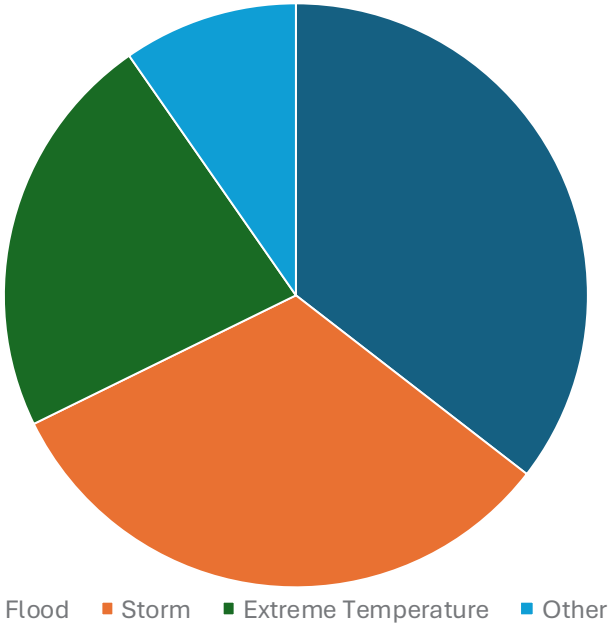


Figure 4: Most Common Hazard Events, Mongolia (2000-2025)

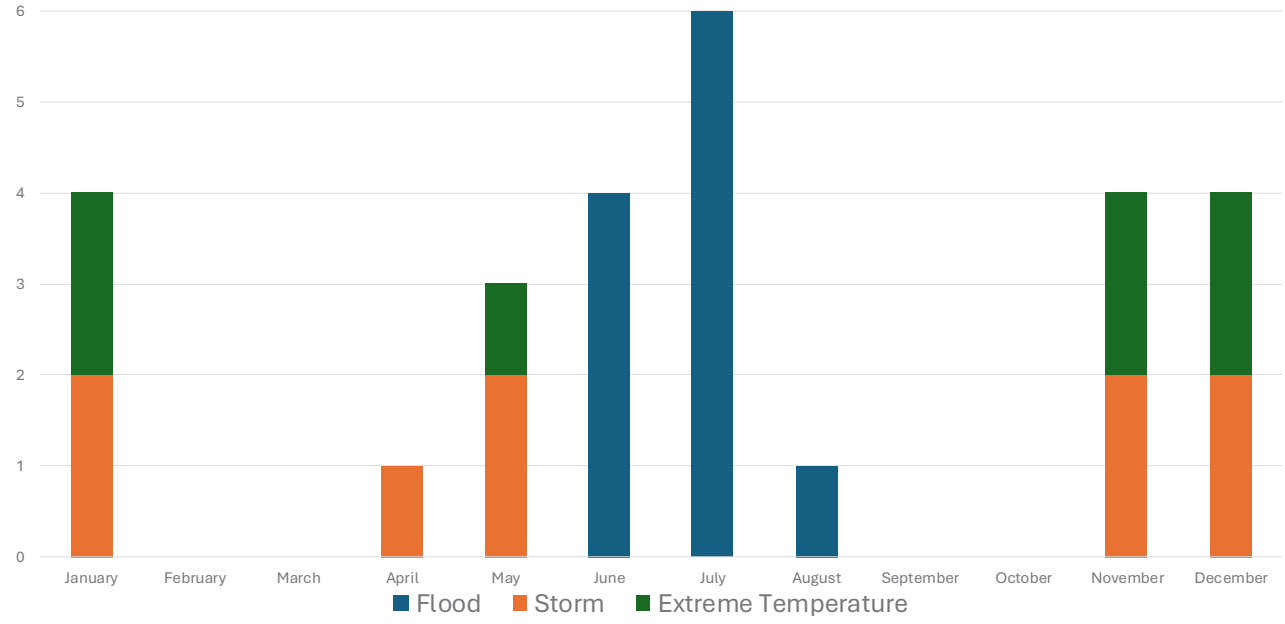


Figure 5: Hazard Event Incidence by Month, Mongolia (2000-2025)

In addition to the seasonal nature of hazard events across the country, there is a geographic component. Storms are the most common hazard event experienced in all but four provinces – i.e., Ulaanbaatar, Orkhon, Selenge, and Tuv. Across the surveyed period, the number of disastrous storms is equal to the number of disastrous floods in each of Orkhon, Selenge, and Tuv, all in the north-central portion of the country. In Ulaanbaatar, also in the north-central region, flooding far out-paces other types of hazard events. Figure 6 breaks down the dominant types of hazard events experienced by provinces.

Although floods and storms make up a similar proportion of the total number of hazard events over the 25-year period, more instances of damaging flooding were recorded in the most recent decade than in the preceding 15 years, as shown in Figure 7. Storm events appear to occur somewhat consistently across the surveyed period, although the decade from 2004 to 2014 shows fewer storm events among fewer hazard events overall.

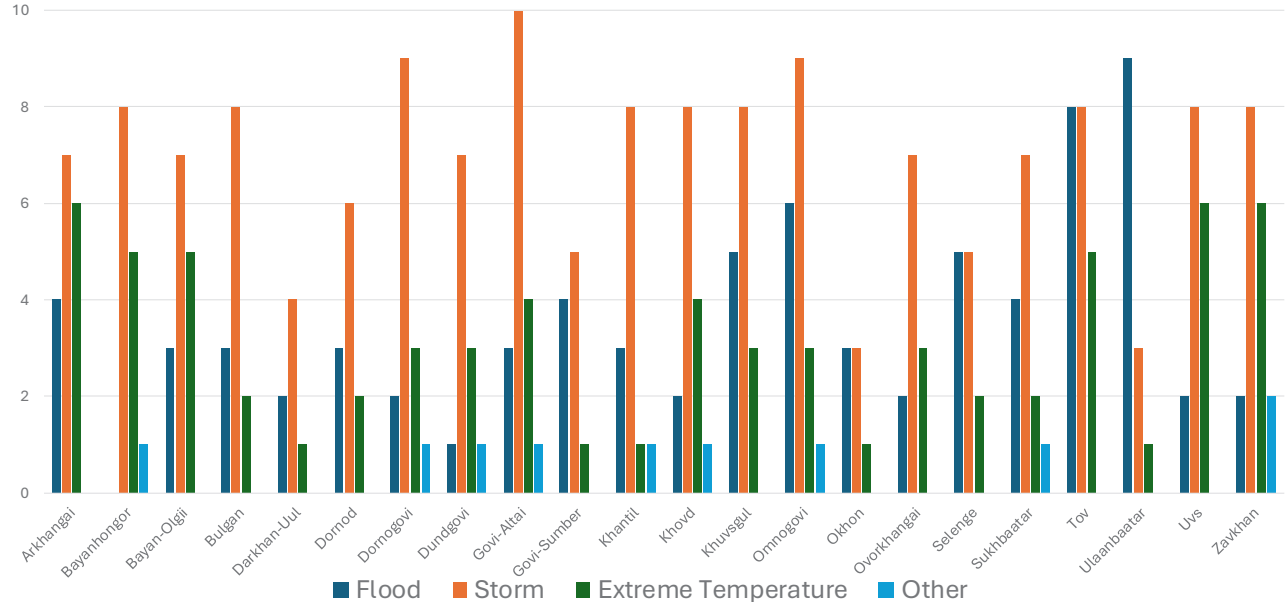


Figure 6: Hazard Events by Province, Mongolia (2000-2025)

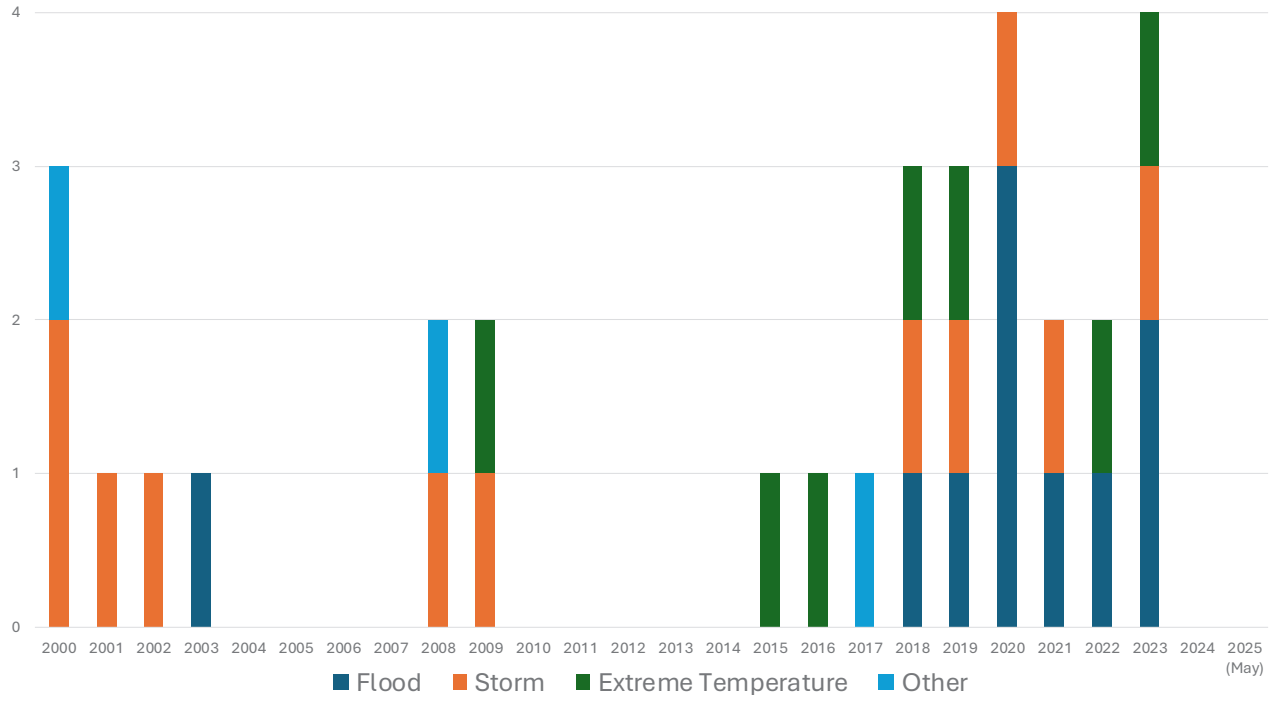


Figure 7: Hazard Events by Year, Mongolia (2000-2025)

Unsurprisingly, the number of people impacted by flooding is also higher in the past 10 years, although that rise is almost entirely down to one extreme event in July 2023 when nearly 300,000 people were affected by heavy rains and a dam failure that impacted Ulaanbaatar. Overall, the number of people affected by flooding is dwarfed by the number of people affected by storms and extreme temperatures. Extreme cold waves and major storms / blizzards can affect upwards of 500,000 people. Of the 10 events with the largest number of people affected, 5 were storms, 3 were extreme temperature events, 1 was a flood (2023), and 1 was a drought. That drought did affect more than 450,000 people and lasted 2 years (2000-2002). Figure 8 illustrates the numbers of people affected by hazard events over the 25-year period of the dataset.

By considering the geographic aspects of flood events versus storms, it is clear why many more people are being impacted by flooding. The north-central Orkhon and Selenge River basins dominate the geography of Orkhon, Selenge, Tov, and Ulaanbaatar, and these are the most densely populated areas of the country.[141] More densely populated areas also tend to have more developed – and expensive – infrastructure, and flooding in these areas will cause higher rates of human loss and material damage, in contrast to a storm that may affect a wide swath of country that is largely uninhabited and, therefore, disrupt livelihoods but cause fewer human losses. A sudden storm that strikes an urban area and takes key infrastructure systems off-line is also more likely to result in a request for international disaster assistance whereas a long-running drought or dzud event may strain local and national capacity but not lead to a large-scale, coordinated, international operation.

Recent Disasters

Over the period 2020–2025, Mongolia has experienced several significant natural disasters, primarily characterized by extreme winter conditions, severe flooding, and a major earthquake. The following is a list of those major events.

Wildfire – March 2025

Following reports of 15 forest and steppe fires across various districts, on 10 March 2025, an emergency task force addressing wildfire effects was established. Approximately 170,000 ha (420,000 acres) of land – including rangeland

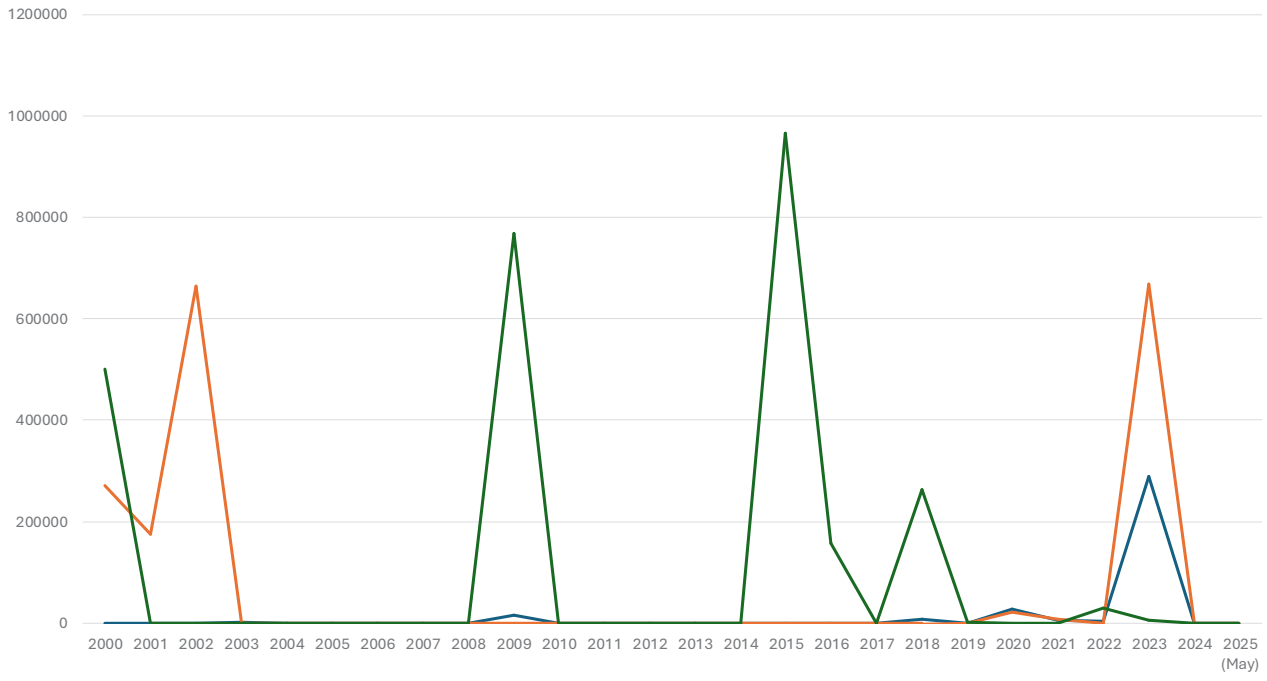


Figure 8: Number of People Affected by Hazard Events, by Year, Mongolia (2000-2025)

and steppe – were impacted, alongside damage to livestock, equipment, and herder dwellings.[142] By 30 June, NEMA reported a total of 144 wildfire incidents, affecting 644,627 ha (1.6 million acres) of land and exceeding MNT 6 billion (US$1.4 million) in damages.[143]

Dzud – 2023–2024

The 2023-2024 dzud represents the second-most severe livestock disaster in Mongolia's recent history, behind only the catastrophic 2010 dzud.[144] This extreme winter event affected over 90% of Mongolia's territory, brought the most snowfall recorded in 49 years, and created the most widespread dzud conditions since 2010.[145]

Livestock mortality reached 12.9 million animals, comprising 4.9 million losses in 2023 and 8.1 million in 2024, a 12.6% national mortality rate.[146] Over 258,000 people, including 100,000 children, were affected, and transportation networks were severely disrupted by snow-blocked roads.[147] The crisis forced 18,859 herder families, comprising 67,892 people, into emergency otor (migration) as they sought accessible pastures. Emergency search and rescue operations responded to more than 114 alert calls and rescued 3,757 individuals trapped by severe weather conditions.[148]

Cold Wave, Snow, and Dust Storms – May 2023

A devastating snowstorm struck eastern Mongolia 19-20 May 2023.[149] The storm brought wind speeds of 18-20 m/second (40.27-44.7 mi/hour), with gusts of up to 28-30 m/second (62.63-67.11 mi/hour), according to the National Agency for Meteorology and Environmental Monitoring, and they caused severe infrastructure damage and significant loss of life and livestock.[150] The storm's impact included the collapse of 22 electricity substations. The resulting power outages across several areas lasted through 24 May.

Housing damage was extensive; 149 households lost their gers completely, while 288 gers and 283 constructed buildings suffered partial damage.[151] Additionally, 317 fences were damaged, and 70 vehicles sustained damage.[152] Human casualties included two fatalities, with 124 people initially reported missing as they followed livestock scattered by the storm; 122 were eventually found safe.[153] The disaster affected approximately 5,100 people and resulted in devastating livestock losses of 623,623 animals across the affected provinces.[154]

Ulaanbaatar Floods – July 2023

In July 2023, Ulaanbaatar experienced severe flooding due to continuous heavy rainfall. The Tuul and Selbe rivers overflowed, leading to widespread damage and displacement. Over 128,000 people were affected, with more than 20,000 displaced from their homes.[155] The floods resulted in several fatalities and widespread property damage, affecting hundreds of homes, gers, and vehicles. The capital's aging infrastructure, particularly in districts lacking proper drainage, proved highly vulnerable. Prolonged precipitation resulted in the Selbe River Dam collapse, which exacerbated flooding in the city. Other infrastructure was severely impacted, with more than 700 roads, bridges, schools, dams, and power lines damaged.[156]

COVID-19 Pandemic – 2020-2023

The COVID-19 pandemic reached Mongolia on 10 March 2020, when the first case of the disease was confirmed in the country.[157] By April 2024, Mongolia had recorded over 1 million cumulative cases and 2,284 deaths.[158] Initially, caseloads remained low, with only 3,161 positive cases and 2 deaths recorded by March 2021,[159] but they escalated quickly in subsequent years as new viral variants arrived.

The pandemic severely impacted Mongolia's economy and society. The economy suffered its worst contraction since the 1990s, with GDP declining 5.3% in 2020, primarily due to reduced trade with the PRC, which closed the border and imported fewer mining products. The poverty rate increased significantly, with between 195,000 and 260,000 additional people falling into poverty; the GoM responded with extensive relief measures.

Social impacts were substantial, with initial

school closures and reduced childcare capacity affecting more than 900,000 children under the age of 18 years. Child welfare deteriorated markedly. Some 62.1% of children experienced weight loss due to inadequate nutrition, and 20.3% had reduced meal frequency.[160] Mongolia's economic recovery lagged behind other East Asian countries, with export revenues remaining muted into 2022 due to persistent Chinese border restrictions.[161]

Dzud – 2022-2023

Severe summer drought affected approximately 50% of the national territory. Hay and fodder availability were reduced just as livestock populations reached an all-time high of 71 million animals. This dzud created the preconditions for the devastating 2023-2024 event by depleting feed resources.[162]

Wildfires – 2022

In 2022, there was significantly increased fire activity compared to previous years. In April, a large fire in Dornod Province demonstrated the rapid spread potential of steppe fires. The blaze extended approximately 90 km (56 mi) eastward in a single day due to strong winds driven by atmospheric pressure gradients.[163] The fires occurred during Mongolia's typical spring fire season, when dry and windy conditions make withered grasslands from the previous year's growth particularly vulnerable to ignition.[164] By August, reports indicated that over 1 million ha (2.47 million acres) of land had burned.[165]

Floods – July 2022

Flash floods struck Ulaanbaatar and surrounding areas on 19 and 24 July 2022. Additional heavy rainfall was reported on 26 July. The rainfall averaged 46-60 mm (1.8-2.36 in) across affected regions and continued for 4-6 hours.[166] The disaster resulted in one fatality and 21 injuries, and 1,186 households were affected, with 15 gers destroyed.[167]

Khuvsgul Earthquake – January 2021

On 12 January 2021, a magnitude 6.7 earthquake struck near Khuvsgul Lake in northern Mongolia. It marked the strongest seismic event in the country since 1967. The quake injured 59 people, damaged 220 buildings, and destroyed 2 buildings.[168] Approximately 220 public buildings sustained damage, including cracked walls and broken windows; infrastructure such as roads and bridges experienced minor damage but remained largely operational.[169] While direct impacts on livelihoods were limited, disruptions affected the pastoralist communities reliant on herding and small-scale agriculture. The Mongolian government and scientific institutions responded by enhancing seismic monitoring and conducting detailed field investigations to better understand the rupture and improve future preparedness.[170]

East Asia Sandstorm – March 2021

A catastrophic sandstorm swept across Mongolia during 14-16 March. Violent winds reached 18-40 m/second (40-90 mi/hour) across multiple provinces. The disaster resulted in 10 fatalities and 1.6 million head of livestock reported missing.[171] The storm was driven by unusually dry conditions, with almost no snow the previous winter and limited summer rainfall, creating vast amounts of loose sand.[172]

The storm originated in the eastern Gobi Desert steppe region and was caused by a powerful Mongolian cyclone with significant pressure drops that generated high winds. Dust coverage extended approximately 450,000 km² (173,746 mi2), with dense dust layers reaching up to 8 km (5 mi) in altitude.[173] The event affected transportation across the region, with at least 590 people initially reported missing in Mongolia as they became disoriented while retrieving scattered livestock.[174] The March 2021 event was recognized as the largest sandstorm in a decade. It caused extensive nationwide damage and impacted northern PRC, Japan, and South Korea.[175]

Dzud – 2021

Mongolia experienced a severe dzud event in early 2021. It affected rural herding communities across the country. The extreme

winter conditions blocked roads and trails and made it difficult for healthcare providers to reach patients. Herder communities were left isolated with little access to social and health services.[176]

Flash Floods – July 2021

Heavy rainfall in July 2021 triggered severe flash flooding across multiple provinces. The most devastating impacts were on 24 July in Govi-Altai Province, where five people died and six households had their gers completely destroyed. In Umnugovi Province, local emergency management agencies received 274 rescue calls and conducted search and rescue operations that helped 397 people. No casualties were reported in that area. Infrastructure damage was extensive, with flash flooding damaging electric substations and leaving parts of several counties without electricity through 29 July. According to the National Agency for Meteorology and Environmental Monitoring, the heavy rains caused most rivers in Mongolia to reach water levels 10-120 centimeters (cm; 4-47 in) higher than normal.[177]

Flash Floods – June-July 2020

Prolonged heavy rainfall from mid-June into July 2020 triggered flash floods across multiple provinces, with precipitation averaging 50-60 mm (19.7-23.6 in). The floods resulted in eight fatalities while affecting approximately 3,570 households. Infrastructure damage was extensive, with approximately 2,360 houses damaged.[178] Critical infrastructure including roads, bridges, and electricity substations sustained damage, with several major highways rendered impassable.[179] Agricultural impacts included the loss of 7,000 head of livestock, with over 5,000 animals killed,[180] and 556 people were stranded and sheltered in school dormitories and hotels.[181]

Dzud – January 2020

On 2 January 2020, Mongolia's National Agency for Meteorology and Environmental Monitoring announced that more than 50% of the country was at risk of an extreme dzud winter. By mid-January, over 70% of the country was covered by 10-30 cm (4-12 in) of snow. The event demonstrated Mongolia's vulnerability to extreme winter conditions.[182]

Photo 4, by Christine Jost/USAID, shows a woman tending her flock in Khovd Province.[183]



Photo 4: Mongolian Woman Tends Her Flock in Khovd Province

DISASTER MANAGEMENT POLICY, PLANNING, AND RESPONSE

Mongolia's national DM structure has shifted away from focusing on disaster response to a more holistic and system-wide approach that aligns with Vision 2050, the country's long-term development policy.[184] The Law on Disaster Protection (2003, revised 2017) established the national DM institutional and governance framework, including laying the foundation for the establishment of NEMA. It also assigned clear responsibilities to state agencies, non-governmental organizations (NGO), local authorities, and the private sector. For the 2017 amendments, NEMA and other stakeholders worked to prioritize DRR and preparedness,[185] and the amended law was supported by projects and government resolutions that enhanced the autonomy of local governments and the private sector. Finally, the 2017 amendment established a new body responsible for disaster risk management (DRM) at national and local levels; this body, the NCDRR, is chaired by the Prime Minister.[186]

National Disaster Management System

NEMA is Mongolia's lead DM institution. It was established in 2003 by merging the Civil Defense Organization, Fire Fighting Department, and State Reserve Department.[187] Led by the Deputy Prime Minister, NEMA leads the implementation of laws, regulations, and state policies on disaster protection by guiding and coordinating with different parts of government administrations at national and local levels. Response and immediate recovery operations are carried out under NEMA's leadership, in coordination with emergency management divisions at the national and local levels.

NEMA's functions are to:

- Strengthen the legal environment of disaster protection, improve policy coordination, and develop partnership and cooperation on DRR at the national, regional, and international levels
- Develop and strengthen a DRM system and introduce science and innovation in disaster protection activities
- Strengthen the organization's leadership, human resource development, and capacity building
- Ensure disaster prevention measures are universal, increase community disaster awareness, and ensure public participation in DRR
- Strengthen professional management on disaster protection, enhance the preparedness of equipment and techniques, and strengthen capacity of search and rescue, response, and recovery operations in disaster sites
- Ensure fire safety, strengthen the fire-fighting system, and improve preparedness techniques through fire prevention and state control
- Manage, coordinate, and deliver state reserve items and activities, including emergency stockpiles
- Strengthen disaster response through efficient humanitarian assistance coordination and recovery
- Increase disaster budget, financing, logistics, and investment and introduce new technologies in disaster protection
- Conduct monitoring, evaluation, and internal audit and increase the outcome and productivity in disaster protection[188]

NEMA's main responsibilities and organizational structure can be understood in accordance with its four key roles of planning, implementation, monitoring, and support. Figure 9 depicts NEMA's organizational chart.[189]

The key tasks of each of NEMA's departments are as follows:

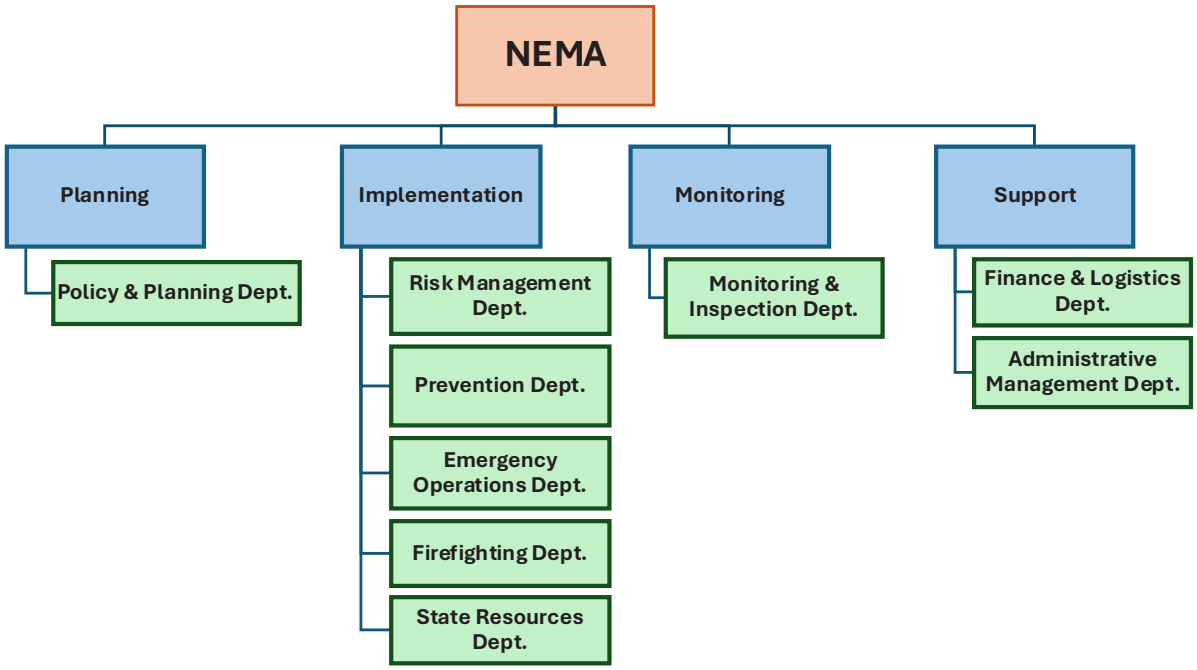


Figure 9: NEMA Organizational Chart

- The Policy and Planning Department formulates policies, strategies, and plans, and it coordinates and builds partnerships with all related stakeholders.
- The Risk Management Department provides technical guidance, planning, and management of risk assessments. It also provides policy on scientific research and innovation on disaster prevention and promotes science-based disaster prevention activities.
- The Prevention Department is responsible for planning, implementing, and coordinating disaster prevention activities and training, including public awareness campaigns.
- The Emergency Operations Department is responsible for planning and organizing equipment and personnel required for early warnings and emergency operations. It is also responsible for organizing, managing, and providing reliable and continuous management of early warning systems at the national level.
- The Firefighting Department manages fire control operations, including management of firefighting equipment and tools, and develops norms and regulations for fire control.
- The State Resources Department manages and coordinates emergency goods and resources, including warehouse management.
- The Monitoring and Inspection Department monitors and assesses the implementation of disaster protection policies and programs, including via internal financial audits.
- The Financial and Logistics Department, in addition to planning the budget, also plans for logistics and supply operations, updating equipment and technologies, ensuring readiness, and developing standards.
- The Administrative Management Department handles human resource issues, including internal training.

The NCDRR and SEC are the two pillars of Mongolia's institutional framework for DRM and DRR. They serve as multi-stakeholder bodies to enhance collaboration across sectors. The NCDRR provides policy recommendations for DRR, and the SEC makes disaster response decisions.

- At the national level, the NCDRR consists of 29 members from the government, civil society, academia, media, and the private sector. Under the Deputy Prime Minister as chair, the NCDRR generally meets once a

year. At the local level, there are 31 Local Councils for Disaster Risk Reduction (LCDRR), each led by the chair of the local parliament.

- At the national level, the SEC is also led by the Deputy Prime Minister, and members gather during disasters or national emergencies to coordinate, make decisions, execute rapid response, and monitor DM and response operations. Under the SEC, a Local Emergency Commission (LEC) operates under the leadership of the Governor in every province, district, and soum, as well as Ulaanbaatar. To undertake response operations, the SEC establishes the emergency operation staff after major disasters. NEMA (national level) and the Local Emergency Management Authority (LEMA) of affected jurisdictions carry out the response operation.[190]

The SEC is often involved in risk assessments for potentially imminent disasters and mandates the establishment of emergency operations centers (EOC). For example, ahead of the 2023-2024 dzud, in late October, the SEC's multisector risk assessment task force surveyed nine provinces to verify winter preparedness according to Government Resolution No. 279, which was aimed at provincial and district levels to take proactive measures. The nine provinces had experienced a notably poor summer season, and the SEC assessment identified a high risk of dzud in five of these provinces. This assessment led the government to provide the high-risk provinces with funds for stockpiling and other preparations. The SEC mandated establishment of the EOC on 8 December 2023, and Emergency Task Forces formed at the provincial and district levels.[191]

EOCs are equipped with basic lifesaving and firefighting equipment, post-disaster response mechanisms, communication devices, operational tools, and trained staff. If the EOC is supporting a field operation, the operations section supports field responders by providing resources and critical information. However, the operations section will direct tactics if there is no field command post and the EOC is leading the incident response. Organization of the operations section may be optimized for the incident response and to not exceed the limits of control. Figure 10 depicts a common layout of an EOC in Mongolia, particularly at the national level.[192]

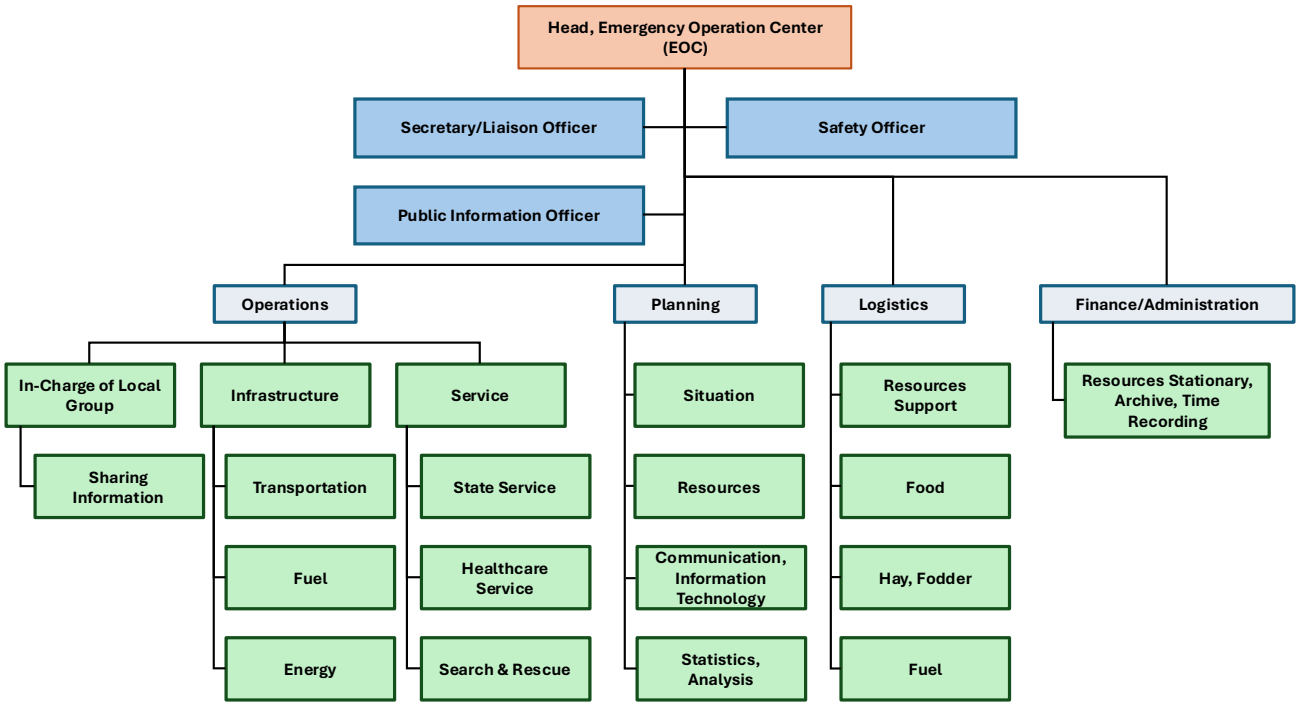


Figure 10: Emergency Operations Center Layout

Subnational and Local Implementation

The 2017 amendments to the Law on Disaster Protection established the NCDRR[193] and SEC, both of which have national and local duties.[194] The expansion of attention paid to local activity reflects Mongolia's efforts toward global DRR targets, especially to integrate communities into DRR and DRM projects. The Law on Disaster Protection provides a well-structured risk governance framework, which extends from national to local levels. It also includes response-oriented emergency commissions and risk reduction-oriented DRR councils and disaster protection services, with NEMA providing overall leadership and coordination.

Figure 11 provides a simplified depiction of Mongolia's overall DM system,[195] which encompasses both the prevention-focused NCDRR and the response-focused SEC, and extends from the national level down to provincial, district, and local levels.

The NCDRR works to integrate public and private sectors in disaster prevention activities, facilitate inter-sectoral cooperation, and increase citizens' participation. The LCDRRs are key to developing the participation of industry and citizens in DRR activities at the provincial and district levels.[196] There are 31 LCDRRs, one in each of the 21 provinces, 9 districts, and Ulaanbaatar. Each LCDRR is led by the chair of the local Citizens' Representative Khural.

Under the national-level SEC, an LEC operates in every province, district, soum, and Ulaanbaatar under the leadership of the Governor of the respective jurisdiction. After a major disaster, the SEC establishes the emergency operation staff to undertake response operations. Under NEMA's national leadership, LEMAs carry out the response and immediate recovery operations. Certification by the International Organization for Standardization of LEMA offices ensures the minimum levels of readiness for response.[197] The national government aims to strengthen the capacity of LCDRRs to carry out professional disaster response activities and to gradually establish local emergency management units, as stated in the national development plan.[198] The country's provinces and cities are active in joining global initiatives and implementing findings from various assessments to build foundations for local action on DRR.

In 2022, Ulaanbaatar and all 21 provinces joined Making Cities Resilient 2030 (MCR2030), a global collaboration led

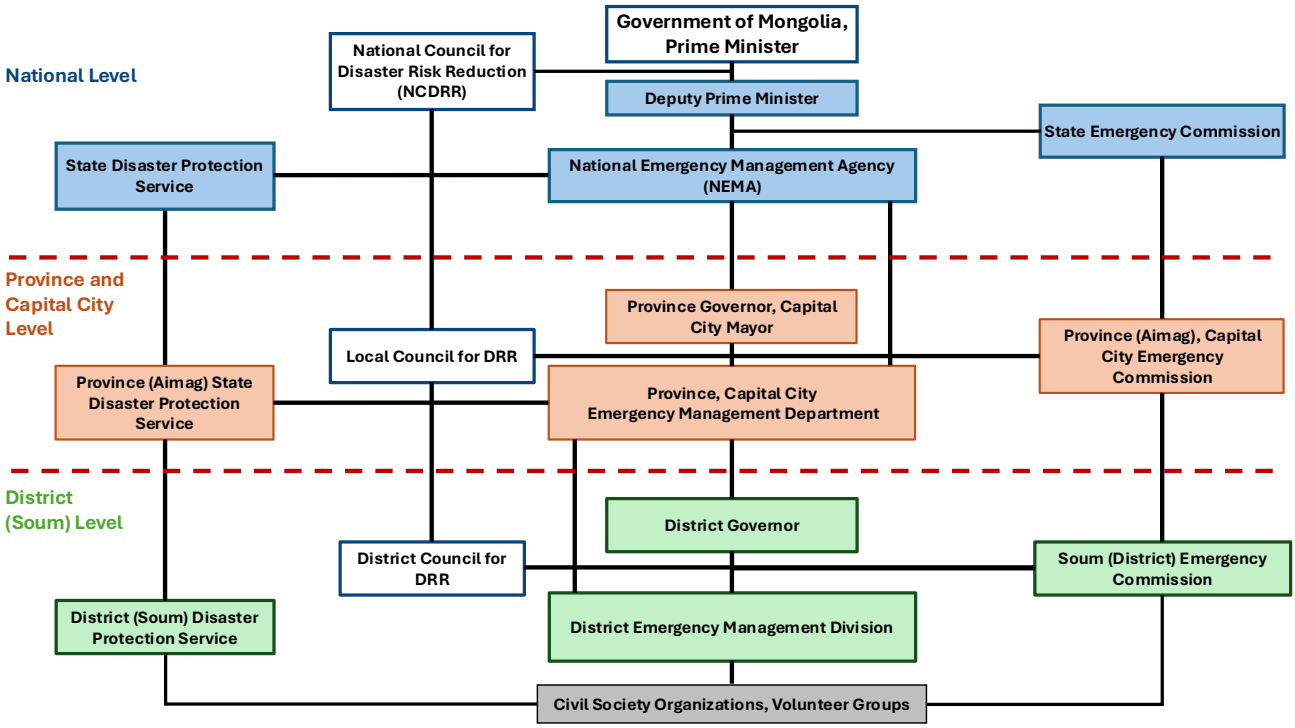


Figure 11: Mongolia's Disaster Management System, Simplified Depiction

by the UN Office for Disaster Risk Reduction (UNDRR) to strengthen urban resilience by helping cities reduce disaster risk and promote sustainable development by 2030. Mongolia joined MCR2030 with an emphasis on the ongoing need to scale up disaster resilience action in an era of escalating climate risk.[199] Ulaanbaatar and provinces have also utilized UNDRR's Disaster Resilience Scorecard for Cities to identify strengths and gaps to inform their subsequent plans, and this participation has resulted in Mongolia achieving the Sendai Framework's global target E, to "substantially increase the number of countries with national and local disaster risk reduction strategies by 2020."[200]

The National Programme of Community Participatory Disaster Risk Reduction significantly contributes to increasing community awareness of DRR. Approved in 2015 by Government Resolution No. 303, the purpose of the national program is "to reduce disaster risks through involvement of communities and individuals in activities of disaster prevention, enhancement of their knowledge and skills due to training and education, promotion and communication, in the creation of safe living culture and strengthening resilience to climate change." The program is being implemented in two phases; the first phase was completed in 2020, and the second phase goes through 2025.[201] Under the program, Mongolia has systematically delivered NEMA-led training programs that target citizens and schools. Children as young as pre-school age are taught safe life skills, aligned with Pillar 3, Risk Reduction and Resilience Education, of the Comprehensive School Safety Framework 2022–2030, an initiative of the Global Alliance for DRR and Resilience in the Education Sector.

In Ulaanbaatar, seismic building vulnerability assessments were conducted on 199 public buildings. The Project for Strengthening the National Capacity of Earthquake Disaster Protection and Prevention in Mongolia, funded by the Japan International Cooperation Agency, was initiated at NEMA's request and conducted from November 2016 to December 2019.[202] In May 2023, the government initiated an earthquake simulation exercise in Ulaanbaatar that engaged schools and communities. As of September 2023, three educational facilities were earmarked for retrofitting.[203]

Disaster Protection Comprehensive Training was conducted for 755,000 people from 2017 to 2022 through 187 training events at the national and local levels. Participants included personnel of LECs in provinces, the capital, and soums/districts, disaster protection services, professional units, emergency management departments, state and local administrations, volunteer groups, humanitarian organizations, citizens, and communities. Similar training has also reached students and pre-school children. Between 2015 and 2022, the number of training events for the public increased by 30%.[204]

Civil-Military Coordination in Disaster Response

The Mongolian Armed Forces (MAF) support domestic, civilian-led disaster response by rapidly deploying personnel and resources to affected areas, helping conduct search and rescue operations, and maintaining order and security in affected regions to better enable humanitarian activities. The MAF are included in emergency task forces convened in response to emergency situations. The MAF are most likely to support disaster response during rapid-onset disasters, such as severe floods or earthquakes.

During 2023 flooding in Ulaanbaatar, responders included 1,198 personnel from the MAF, Mongolian police, and NEMA. Response efforts included erecting temporary levees, clearing flooded roads, and conducting rescues and evacuations.[205] Soldiers and members of the civil defense force were also deployed for rescue and relief activities that included setting up centers for people displaced by flooding and distributing food and medicine.[206] A task force for flood response and preparedness was established on 6 July 2023; it comprised all departments of NEMA, the Ministry of Health, the Ministry of Construction and Urban Planning, the Research Center for

Communicable Disease, the MAF, border services, and the police. The Mongolian Red Cross Society was also represented on the task force, which was responsible for making necessary decisions, sharing information, providing coordination, and informing decision-making processes.[207]

In recent years, the MAF have demonstrated their ability to deploy outside of the country to deliver life-saving assistance based on experiences at home. In response to the devastating earthquake that struck northern Syria and southern and central Türkiye on 6 February 2023, Mongolia deployed a search and rescue team and a forward medical team to Türkiye. The teams were among the first international responders deployed to assist with disaster relief efforts, and both teams started operations on 8 February in Hatay City.[208] The forward medical team was comprised of MAF doctors and nurses, many of whom had deployment experience to UN peacekeeping missions. They delivered critical medical support to people affected by the earthquake.[209] The forward medical team provided medical support to over 700 patients in 9 days. Officials from Mongolia's NEMA handed over to Turkish officials humanitarian aid packages, which included Mongolian gers. Photo 5 depicts Mongolian responders in Türkiye following the earthquake.[210]



Photo 5: Mongolian Rescue Personnel in Türkiye (2023)

As an adjunct to MAF's direct DM activities, Mongolia is a significant troop-contributing country to UN peacekeeping missions.[211] Mongolia has developed international military ties through this participation. Objectives for the MAF within the national development plan, Vision 2050, include increasing "participation and capacity of the armed forces in United Nations peacekeeping missions and in the country's development."[212]

International exercises play a role in preparing the MAF for large-scale disaster responses. Multinational responses are a consistent focus of the Gobi Wolf and Khangai exercises hosted in Mongolia. Gobi Wolf is a multinational civil and military training exercise co-organized by Mongolia's NEMA and the U.S. Army Pacific. Recent iterations have drawn participation from a dozen countries and explored various disaster response topics, including incident command structures, coordination of international aid, emergency operations protocols, field hospitals, and hazardous materials management.[213]

During the COVID-19 pandemic, Khangai was co-organized by NEMA and the U.S. Air Force, and it helped maintain continuity of U.S.-Mongolia disaster exercises amidst pandemic disruptions.[214] Additionally, Khaan Quest is a multinational exercise regularly hosted by the MAF and co-sponsored by U.S. Indo-Pacific Command (USINDOPACOM). It focuses on UN peacekeeping training, with scenarios that often involve coordination with humanitarian organizations.[215] Mongolia, in coordination with USINDOPACOM, also hosted the May 2024 Tempest Express workshop, bringing together international humanitarian and military personnel to discuss and exercise multinational disaster response, humanitarian assistance, and other operations, in order to enhance multinational capabilities.[216]

International / Regional Organizations

This section outlines Mongolia's engagement with the UN and other inter-governmental and international frameworks that are relevant to DM and DRR.

United Nations

Since its full membership in 1961, Mongolia has been an active member-state of the UN. Mongolia participates significantly in UN peacekeeping operations, and the MAF are integrated into several UN peacekeeping missions.

The UN Country Team in Mongolia is comprised of 17 UN agencies, funds, programs, and other UN entities with programs in Mongolia. Many of these agencies focus predominantly on aspects of development work or advocacy and are not integrated into the country's DM frameworks. Key agencies, funds, programs, and other entities for the purposes of DM include:

- UN Resident Coordinator's Office (UN RCO) – Coordinates early action and disaster response activities among the Humanitarian Country Team (HCT) in support of the GoM; during a humanitarian response, the UN RCO is the HCT focal point that receives information directly from the SEC-affiliated EOC
- UN Children's Fund (UNICEF)
- UN Population Fund (UNFPA)
- Food and Agriculture Organization (FAO)
- World Health Organization (WHO)
- International Organization for Migration (IOM)
- UN Development Programme (UNDP)[217]

The UN Sustainable Development Goals (SDG) guide Mongolia's DM approach, which has shifted to increasingly emphasize DRR and reducing vulnerabilities.[218] The SDGs are the core of the 2030 Agenda for Sustainable Development, adopted by all UN member-states in 2015. There are 17 SDGs relating to reduction of poverty and inequality and improvement of health, education, sustainable economic growth, environmental protection, and climate action by 2030.[219]

UNDRR is the UN's main proponent for the Sendai Framework for Disaster Risk Reduction 2015-2030, the global blueprint and 15-year plan to build the world's resilience to natural disasters. It lays out seven targets and four priorities for action for countries. The seven targets relate to reducing disaster mortality, number of affected people, disaster economic loss, and disaster infrastructure damage; and increasing DRR strategies, international cooperation, and multi-hazard early warning systems. The four priorities for action are in the areas of understanding disaster risk, strengthening disaster risk governance, investing in disaster reduction for resilience, and enhancing disaster preparedness.[220]

The Sendai Framework guides Mongolian policies and programs in several ways. The Law on Disaster Protection was reformulated in 2017 and brought reforms in DRR. The National Programme on Community Participatory DRR and the Medium-term Strategy for the Implementation of the Sendai Framework are implemented to align with Vision 2050 and with the National Action Programme on Climate Change 2011-2021. Additionally, as part of its long-term work toward DRR, Mongolia developed its first National Adaptation Plan to Climate Change, published in 2025.[221] As a result of inclusive policies, measures of community resilience have significantly improved, particularly for children, women, the elderly, people living with disabilities, and marginalized communities. Disaster protection plans based on risk assessments have been developed at the local level,[222] and NEMA is sustaining programs to continue working toward the Sendai targets.

Women, Peace and Security (WPS)

The WPS agenda is a global framework aimed at increasing the meaningful participation of women in all levels of peace processes and security efforts. It is anchored in UN Security Council Resolution 1325, which passed in 2000, and is further comprised of 10 subsequent resolutions. The WPS agenda builds upon evidence that women's participation in peace and security processes contribute to more enduring positive outcomes.[223] The GoM has committed to prioritizing the development of the country's first National Action Plan on WPS through a collaborative process, as reflected in a call to action by Mandkhai Batsuren, Director-General of the Multilateral Cooperation

Department at the Ministry of Foreign Affairs, at a February 2025 WPS forum co-organized with UN Women and the Embassy of Canada.[224]

USINDOPACOM partnered with Mongolia to develop the Women's Mentorship Program in 2018; it guides the incorporation of human security information and analysis to better achieve mission effectiveness. The program continues to equip women in Mongolia's defense and security sector with this skillset, which also facilitates addressing the needs of vulnerable populations in disaster responses and strengthens interagency relationships.[225] Mongolia military gender advisors have supported USINDOPACOM in delivering regional WPS training.[226]

While some dedicated laws evince commitment to addressing gender equality, most DM laws do not address gender.[227]

Ulaanbaatar Dialogue on Northeast Asian Security (UB Dialogue)

The UB Dialogue was launched by Mongolia in 2013 to contribute toward conflict resolution by facilitating open dialogue to increase understanding and build mutual trust. Mongolia leverages its perceived impartiality, democratic institutions, non-nuclear-weapons status, and political stability to host this open, international, dialogue platform.[228] Issues of shared concern that have been discussed include climate change, extreme weather events, and environmental security.[229]

Other Disaster Management Partners

Major international humanitarian and development partners participate in DM in Mongolia. They support planning, funding, and implementation of all aspects of preparedness, mitigation, response, and recovery alongside Mongolian government and civil society stakeholders. The key centralizer of large-scale action is the HCT, but work outside this coordination structure is also critical to preparing communities.

Humanitarian Country Team

The HCT works to ensure that the activities of supporting organizations are coordinated with the Government, humanitarian assessments are jointly conducted with the Government, support is delivered in a timely and efficient manner, and longer-term recovery is achieved.

The HCT in Mongolia was jointly launched in 2011 by NEMA, UN agencies in Mongolia, the International Federation of Red Cross the Red Crescent Societies (IFRC), World Vision (WV) Mongolia, and Save the Children (SC). The objective is to improve coordination and harmonize preparedness for and response to humanitarian crises. The HCT is comprised primarily of international organizations, but it also includes national organizations that undertake humanitarian actions. The GoM and various humanitarian groups co-lead sectors or clusters, each of which focuses on a functional area (e.g., food, health, shelter, etc.) to prepare for and respond to a disaster in the country.

HCT activities also focus on preparedness, especially policy coordination, response planning, monitoring sectoral work, information sharing, and resource mobilization. One of its major tasks is to ensure linkages to national and international NGOs and provide opportunities for dialogue and consultation.[230]

HCT activities focus on anticipatory action and response. During recent dzud responses, the HCT received direct information from the SEC's EOC and channeled it through the UN RCO's EOC to stakeholders. Figure 12 shows the coordination structure of the core HCT in Mongolia by sector and sector leads.[231] The Education, Nutrition, WASH, Food and Agriculture, Protection, and Health sectors particularly work at the grassroots level.

SC is part of the HCT and is the co-lead for the Education sector along with UNICEF. SC launched their Mongolia Program in 1994 and operated with management support from Save the Children United Kingdom (UK) from 1994 to 2009 and from Save the Children Japan since 2009. SC works in Ulaanbaatar and eight provinces in areas of education, child poverty, child protection, child rights

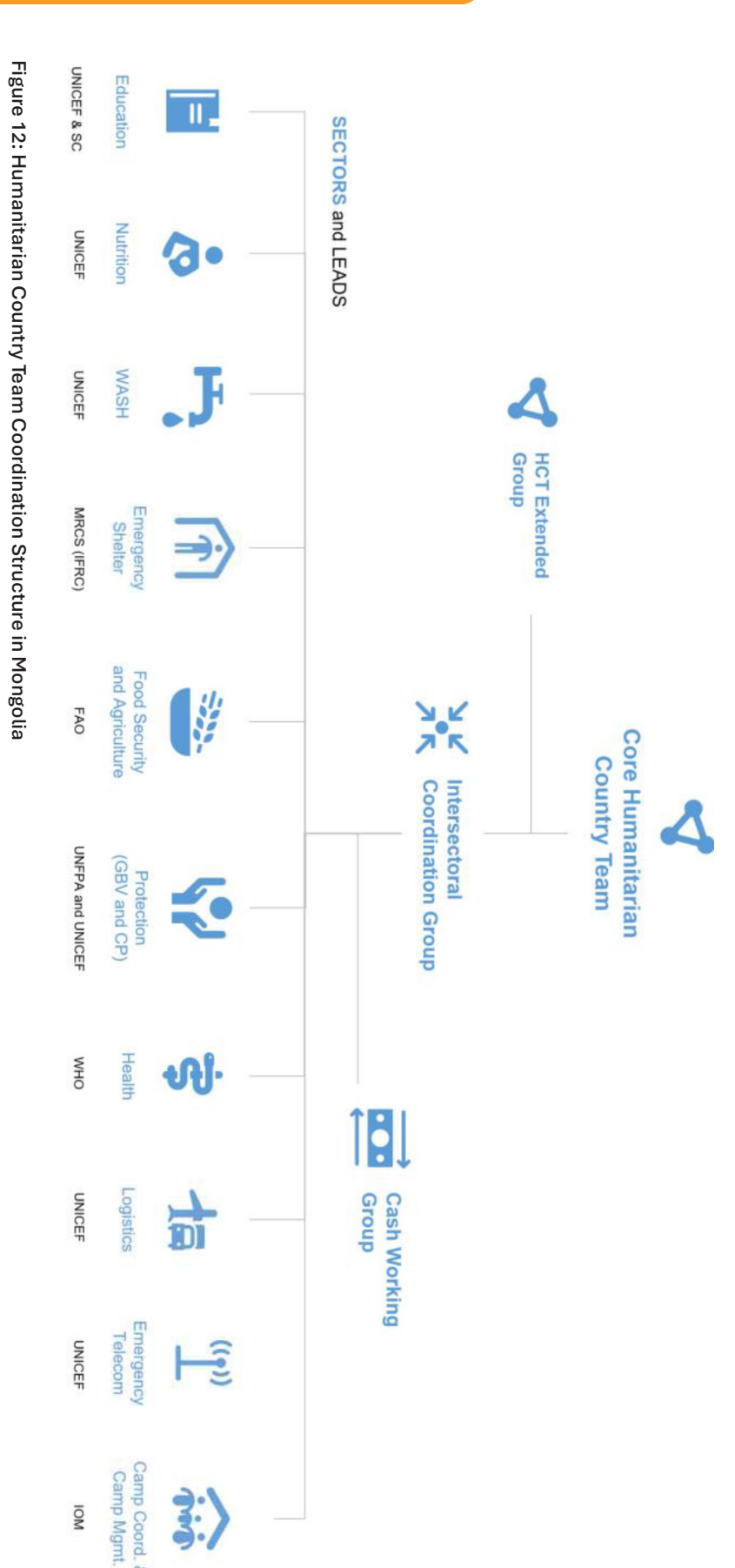


Figure 12: Humanitarian Country Team Coordination Structure in Mongolia

governance, and health, as well as emergency relief and humanitarian assistance. In 2021, SC implemented a sandstorm response project to provide gers, hygiene kits, and cash to affected families in Arkhangai, Govi-Altai, Dornod, Dundgovi, Sukhbaatar, and Uvurkhangai. In response to the 2022-2023 dzud, SC assisted affected families in in Khovd, Zavkhan, Govi-Altai, Bayankhongor, and Tuv by providing livestock fodder, cash transfers, hygiene kits, blankets, and winter boots.[232] In response to the 2023-2024 dzud, SC provided cash transfers, food, livestock feed, and first aid animal care kits. It also participated in food security and agriculture as well as nutrition sectors.[233]

WV Mongolia formalized its country office in 1995, after first becoming involved in the country in 1991.[234] WV Mongolia conducts a wide range of development work as well as emergency relief. In response to the 2023-2024 dzud, WV Mongolia provided cash transfers, food, livestock feed, and first aid animal care kits, and it participated in the sectors of food security and agriculture, WASH, and child protection.

International Red Cross and Red Crescent Movement

The Mongolian Red Cross Society (MRCS), like most National Red Cross and Red Crescent Societies, acts as an auxiliary to the government in DRR, emergency response, and other humanitarian assistance activities. Recognized by the IFRC in 1959, the MRCS saw its legal statutes updated in 2000, when the State Great Khural approved the Law on the Legal Status of the Red Cross Society of Mongolia. It recognized MRCS as a national organization acting as an auxiliary to the state in humanitarian affairs.[235] MRCS' role was reaffirmed and strengthened in the 2017 revised Disaster Protection Law, which listed the MRCS as the sole national humanitarian organization that can call for international assistance.[236]

MRCS works with NEMA and the SEC to build capacity across prevention, preparedness, and recovery. From 2016 to 2019, the IFRC assisted in assessing MRCS's disaster preparedness, and MRCS made empirical improvements to its preparedness measures. MRCS showed a marked increase in the area of analysis and planning of response preparedness, likely attributable to early action protocols used to address dzud.[237] During the 2023-2024 dzud, MRCS provided herder households with cash and animal care kits that help animals survive particularly harsh winters, and this work preserved family livelihoods. MRCS also provided food to food-insecure families and conducted extensive outreach on psychosocial first aid.[238] Photo 6, by the Mongolian Red Cross Society, shows MRCS staff conducting a dzud rapid needs assessment in 2024.[239]



Photo 6: Mongolian Red Cross Staff Conduct Dzud Rapid Needs Assessment

The MRCS, with support from the IFRC, has worked in partnership with NEMA to implement, at national and subnational levels, "Disaster Law Dissemination – Know your 3Rs: Rights, Roles, and Responsibilities." The project raises awareness and understanding of rights, roles, and responsibilities of organizations and individuals to ensure effective DRM and compliance with DM frameworks throughout Mongolia. More than 200 LEMA and MRCS branch officers had been trained by 2020.[240] The MRCS also collaborates with the IFRC and the Red Cross Red Crescent Climate Centre to establish early action protocols and prepare financial mechanisms.

The IFRC supports the MRCS with financial and technical assistance, coordinates support from other National Red Cross and Red Crescent Societies, and supports DM law reform and training. The IFRC frequently supports

MRCS through the IFRC Country Cluster Office in Beijing, which covers the PRC, South Korea, Japan, and Mongolia, and the IFRC Asia Pacific Regional Office in Kuala Lumpur, Malaysia. To support affected families during a recent dzud, in February 2024, the IFRC released CHF 500,000 (US$580,000) from its disaster response emergency fund, and, in March 2024, it launched an Emergency Appeal 2024 for CHF 4.5 million (US$5.22 million).[241] The IFRC, along with MRCS, also supported longer term post-dzud recovery efforts.[242]

The International Committee of the Red Cross (ICRC) is not present in Mongolia,[243] but it does engage with Mongolia to promote international humanitarian law (IHL) and other humanitarian considerations. In September 2024, President of Mongolia Khurelsukh Ukhnaa received ICRC President Mirjana Spoljaric Egger on the sidelines of the 79th Session of the UN General Assembly and discussed the initiative to establish an ICRC warehouse in Northeast Asia. It would be based in Mongolia and support the ICRC's humanitarian operations.[244] In June 2025, ICRC participated in the 22nd iteration of Exercise Khaan Quest, a UN peacekeeping international military training exercise hosted by the GoM and USINDOPACOM, to ensure the integration of protection of civilians and respect for IHL.[245]

Non-Governmental Organizations

Adventist Development and Relief Agency (ADRA) Mongolia was established in 1994. Their work focuses on health, livelihoods, agriculture, and emergency aid programs. In response to the 2023-2024 dzud, ADRA Mongolia provided cash transfers, food, livestock feed, and first aid animal care kits, and it participated in the food security and agriculture sector.[246] They aided 167 of the most vulnerable herder households in Sukhbaatar.[247]

Good Neighbors Mongolia was established in 2006; the international NGO Good Neighbors was founded in 1991. Good Neighbors Mongolia initiated nationwide research on the protection of child rights and has implemented community-focused projects based on child rights and protection in six districts of Ulaanbaatar city, as well as in Darkhan-Uul and Orkhon.[248] In response to the 2023-2024 dzud, Good Neighbors provided food packages, animal feed, learning tools for children of herder households, and dignity kits for women and girls. It participated in the sectors of food security and agriculture, education, and protection.[249]

The Capacity for Disaster Reduction Initiative (CADRI) worked with Mongolia in 2023 to collaboratively review the country's institutional and operational readiness for emergency management and DRR. Led by NEMA and the UN RCO, the capacity assessment was jointly carried out by 16 international and national experts from the CADRI Secretariat, NEMA, UNFPA, FAO, UNDP, IOM, UN Disaster Assessment and Coordination, UN-Habitat, UNDRR, WV Mongolia, and the World Meteorological Organization (two specialists, one each from the China Meteorological Administration and Korea Meteorological Administration). The assessment focused on preparedness, early warning systems, and risk reduction by looking at five critical capacity dimensions: governance, implementation, financing, knowledge, and technology. Priority sectors – agriculture, infrastructure, education, health, human mobility, and climate services – were carefully examined to ensure a comprehensive and context-specific analysis. The assessment will inform future policy and program interventions and strengthen NEMA's role in promoting DRR regionally. Recommendations address the importance of fully integrating post-disaster recovery and reconstruction processes.[250]

Mongolian Civil Society

When Mongolia transitioned to a market economy and democracy in the early 1990s, many civil society organizations (CSO), previously established under the socialist regime as mass organizations, reformed as independent NGOs, and new ones developed.

Civil society has become an active part of Mongolian society. As of June 2018, 17,634 CSOs were formally registered at the General

Authority for State Registration, and over 80% of CSOs are based in the capital. Only a small proportion of all CSOs have regular and systematic operations due to limited funding, personnel retention challenges, and shortfalls in management capacities. Most CSOs are small, run voluntarily, and do not have full-time staff. Medium-sized CSOs typically have 2-5 regular staff as well as volunteers. Women are prominently represented at membership and leadership levels; they account for more than 80% of staff members.

The Civil Society Council was established in 2008 as an umbrella organization, and civil society has replicated these networks at provincial levels. Sector civil society councils were also established in 2008 with the ministries of health, education, environment, and defense. CSOs are diverse and advocate for policy and legal reforms pertaining to a wide range of interests, including those of herders, people living with disabilities, child welfare, gender equity, and transparency in governance and industry. While few CSOs are directly involved in disaster response, their work in reducing social vulnerabilities contributes broadly to DRR and resilience.[251]

Other Organizations

The ADB has worked with the GoM since at least 1994 to find and finance development solutions. As of December 2024, ADB has committed 390 public sector loans, grants, and technical assistance totaling US$4.5 billion to Mongolia. ADB's current sovereign portfolio in Mongolia includes 42 loans and 3 grants worth US$1.7 billion. ADB responded to the dzud in the spring of 2024 by disbursing a US$2.8 million grant from the Asia Pacific Disaster Response Fund to support government relief efforts.[252]

The Japan International Cooperation Agency (JICA) had extended approximately JPY 328.4 billion (more than US$3 billion) in technical cooperation, loans, and grants to Mongolia as of March 2020. JICA has dispatched over 710 volunteers to Mongolia since 1992, and more than 5,200 Mongolian participants have been trained in Japan. Supported projects pertain to health, social services, inclusion of people living with disabilities, industry diversification, infrastructure development, and improving public financial management.[253] DRR education programs for school and pre-school curricula were supported by the project, "Strengthening the National Capacity of Earthquake Disaster Risk Protection and Prevention in Mongolia," which was funded by Japan's Fund of Poverty Reduction 2016-2019. As a result of the project, a joint Mongolia-Japan working group developed the "Life Safety Education" training program, which was approved by the Minister of Education's Order No. A/181 in 2018. Mongolian students and pre-school children have been using the program since the 2018-2019 academic year.[254]

The China International Development Cooperation Agency (CIDCA) and the IFRC signed an agreement in March 2025 to help address Mongolia's escalating climate risks. This agreement marked the first joint program between CIDCA and IFRC in Asia. Over two years, it will help communities reduce vulnerabilities to climate risks by establishing community-based early action systems, supporting livestock feeding practices that better withstand climate disasters, helping diversify incomes through skills training, and strengthening the institutional capacity of the MRCS. The initiative aims to benefit more than 20,000 individuals across four high-risk provinces in Mongolia.[255] CIDCA and the PRC's National Forestry and Grassland Administration signed an agreement in September 2023 with the GoM to collaborate against desertification in support of Mongolia's "Plant a Billion Trees" initiative. Beijing also supports the construction of ecological protection and restoration demonstration areas, collaborates on building sand and dust monitoring stations in the Gobi Desert to monitor sandstorms and provide early warnings, and promotes afforestation, grass planting, and sand control techniques and models in Mongolia. The China-Mongolia Desertification Prevention and Control Cooperation Center was also established as a platform for joint efforts in combating desertification.[256]

CRITICAL INFRASTRUCTURE FOR DISASTER MANAGEMENT

The landlocked country is dependent on road, rail, and air transport, which primarily runs in and out of the capital. The early warning system relies on the National Agency of Meteorology and Environment to provide forecasts and analyses to NEMA and other agencies for wider distribution through a variety of media and platforms to reach the public. Mongolia strives to further develop their system toward an integrated multi-hazard early warning system. The electric power sector's largest vulnerabilities are aging infrastructure, heavy import dependence, and reliance on coal. Meanwhile, rural areas are particularly challenged by access to safely managed water and sanitation services. Climate change impacts are anticipated to pose further challenges to water supply and access, with droughts projected to worsen.

Transportation

Ulaanbaatar is the hub of the country's air network, and the predominant cargo terminal is at Chinggis Khaan airport. Many of the other airports in the country are small airstrips in remote locations without the capacity to receive larger aircraft and more vulnerable to disrupted operations due to extreme weather. Mongolia has the highest road infrastructure availability per capita in the region, but most roads are unpaved. Extreme cold and winter weather can pose road safety issues. The main rail line runs north-to-south from the Russian border to the Chinese border and through Ulaanbaatar, though it has limited capacity and slow transit times.

Airports

As of 2023, the country had nine airports with regularly scheduled commercial flights.[257] Ulaanbaatar's Chinggis Khaan is the hub of the network and the node for nearly 100% of international traffic.[258] Despite the dominance of the capital within this network, the remoteness of most settlements drove the development of small airstrips in most towns and near mining hubs. Most airports do not have the capacity to welcome anything but a small turboprop aircraft. Moreover, all are vulnerable to disrupted operations due to heavy snow, freezing temperatures, sandstorms, and high winds.[259]

The cargo terminal at Chinggis Khaan is the largest – and potentially only – one of its type in the country. It has nearly 4,000 m^2 (43,000 ft^2) of open storage floor and dedicated refrigerated and frozen space.[260] The airports at Khovd, Choibalsan, and Ulgii are internationally rated. However, they are not the accepted alternatives in case Chinggis Khaan is rendered unusable. Rather, the former capital international airport – Buyant Ukhaa – or the former military airport near Nalayh (Nalaikh "Sky Friends," 45 km [28 mi] from Ulaanbaatar) provide the nearest alternative facilities. Buyant Ukhaa retains cargo handling capacity and is significantly larger than Sky Friends. Although it does not handle regularly scheduled commercial traffic, it is used for charter and private flights.[261]

Even the Ulaanbaatar airport can experience weather-related disruptions. During the winter, storms often bring high winds, heavy snow, and clouds of dust that force the airport's closure. Concurrently, storage of relief items can be challenging as very low temperatures can damage some items, and few international or national relief partners maintain pre-positioned stocks in the country.[262] By law, relief supplies may be moved through ports of entry in an expedited fashion. UN Country Team member-agencies and major NGOs maintain agreements with Mongolia's customs and border officials to facilitate humanitarian shipments.[263]

Table 1 provides some details of the country's airports.[264]

Airport	IATA / ICAO Code	City Served	Elevation	Runway Dimensions	Runway Surface
Altai	LTI / ZMAT	Altai, Govi-Altai Province	2,213 m (7,260 ft)	2,899 × 30 m (9,511 × 98 ft)	Asphalt / gravel
Arvaikheer	AVK / ZMAH	Arvaikheer, Uvurkhangai Province	1,808 m (5,932 ft)	2,500 × 50 m (8,202 × 164 ft)	Gravel
Baruun-Urt	UUN / ZMBU	Baruun-Urt, Sukhbaatar Province	977 m (3,205 ft)	2,200 × 50 m (7,218 × 164 ft)	Gravel
Bayankhongor	BYN / ZMBH	Bayankhongor, Bayankhongor Province	1,855 m (6,085 ft)	2,811 × 35 m (9,222 × 115 ft)	Asphalt
Binder	n/a / ZMBD	Binder, Khentii Province	1,043 m (3,422 ft)	1,188 m (3,900 ft)	Asphalt
Bulgan	UGA / ZMBN	Bulgan, Bulgan Province	1,314 m (4,311 ft)	1,920 × 30 m (6,299 × 98 ft)	Gravel
Bulgan Sum	HBU / ZMBS	Bulgan, Khovd Province	1,195 m (3,921 ft)	1,800 × 30 m (5,906 × 98 ft)	Gravel
Buyant Ukhaa	ULN / ZMUB	Ulaanbaatar	1,330 m (4,364 ft)	14/32: 3,100 × 45 m (10,171 × 148 ft) 15/33: 2,005 × 50 m (6,578 × 164 ft)	14/32: Asphalt 15/33: Gravel
Chinggis Khaan (Ulaanbaatar)	UBN / ZMCK	Sergelen, Tuv Province	1,366 m (4,482 ft)	3,600 × 45 m (11,811 × 148 ft)	Concrete
Choibalsan	COQ / ZMCD	Choibalsan, Dornod Province	749 m (2,457 ft)	2,597 × 40 m (8,520 × 131 ft)	Concrete
Dadal	n/a / ZMDA	Dadal, Khentii Province	981 m (3,220 ft)	1,570 × 40 m (5,150 × 131 ft)	Grass
Dalanzadgad	DLZ / ZMDZ	Dalanzadgad, Umnugovi Province	1,459 m (4,787 ft)	2,200 × 30 m (7,218 × 98 ft)	Asphalt
Donoi	ULZ / ZMDN	Uliastai, Zavkhan Province	1,768 m (5,800 ft)	2,859 × 30 m (9,380 × 98 ft)	Asphalt
Erdenet	ERT / n/a	Erdenet, Orkhon Province	1,280 m (4,200 ft)	2,292 m (7,520 ft)	unknown
Khanbumbat	n/a / ZMKB	Khanbogd, Umnugovi Province	1,196 m (3,924 ft)	3,250 × 45 m (10,663 × 148 ft)	Concrete
Kharkhorin	KHR / ZMHH	Kharkhorin, Uvurkhangai Province	1,451 m (4,759 ft)	1,890 × 30 m (6,201 × 98 ft)	Gravel
Khatgal	HTM / ZMHG	Khatgal, Khuvsgul Province	1,676 m (5,500 ft)	2,300 × 30 m (7,546 × 98 ft)	Gravel
Khovd	HVD / ZMKD	Khovd, Khovd Province	1,493 m (4,898 ft)	2,850 × 35 m (9,350 × 115 ft)	Asphalt
Khujirt	HJT / ZMHU	Khujirt, Uvurkhangai Province	1,683 m (5,522 ft)	2,200 × 60 m (7,218 × 197 ft)	Gravel / grass
Mandalgovi	MXW / ZMMG	Mandalgovi, Dundgovi Province	1,387 m (4,550 ft)	1,200 × 30 m (3,937 × 98 ft)	Gravel
Murun	MXV / ZMMN	Murun, Khuvsgul Province	1,302 m (4,272 ft)	2,400 × 42 m (7,874 × 138 ft)	Asphalt
Nalaikh (Sky Friends)	n/a / ZMSF	Ulaanbaatar	1,472 m (4,829 ft)	804 × 15 m (2,638 × 49 ft)	Gravel
Undurkhaan	UNR / ZMUH	Undurkhaan, Khentii Province	1,039 m (3,410 ft)	1,960 × 50 m (6,430 × 164 ft)	Gravel
Ovoot	n/a / ZMGT	Ovoot Tolgoi, Umnugovi Province	1,576 m (5,171 ft)	2,220 × 30 m (7,283 × 98 ft)	Asphalt
Sainshand	n/a / ZMSH	Sainshand, Dornogovi Province	921 m (3,022 ft)	2,773 m (9,100 ft)	Asphalt
Tosontsengel	TNZ / ZMTL	Tosontsengel, Zavkhan Province	1,710 m (5,610 ft)	2,400 × 30 m (7,874 × 98 ft)	Gravel
Tsetserleg	TSZ / ZMTG	Tsetserleg, Arkhangai Province	1,686 m (5,530 ft)	1,650 × 35 m (5,413 × 115 ft)	Grass
Ulaangom	ULO / ZMUG	Ulaangom, Uvs Province	935 m (3,068 ft)	2,698 × 30 m (8,852 × 98 ft)	Concrete
Ulgii	ULG / ZMUL	Ulgii, Bayan-Ulgii Province	1,747 m (5,732 ft)	2,850 × 30 m (9,350 × 98 ft)	Concrete / gravel
Umnugovi / Tavan Tolgoi	n/a / ZMTT	Tsogttsetsii, Umnugovi Province	1,461 m (4,793 ft)	2,350 × 30 m (7,710 × 98 ft)	Gravel

Table 1: Mongolia Airport Profile

Seaports

Landlocked Mongolia relies on ports within the PRC and the Russian Federation for import and export of many goods. Since 1992, Mongolia's Maritime Administration has overseen an agreement for transportation (rail) through Russia and access to that country's Far East ports. Since 2014, Mongolia and the PRC have maintained an agreement for Mongolia to access ports in northern and eastern PRC for sea-borne trade.[265] Arrangements for expedited or duty-free humanitarian relief shipments, if available, have not been made public.

The PRC's Xingang (Tianjin) port is the closest seaport to Mongolia. The distance between Ulaanbaatar and the port is 1,870 km (1,160 mi). Direct rail and road links connect the port to the border crossing station at Zamyn-Uud.[266] Freight companies report an approximate 15-day transit between Xingang and Mongolia's capital for routine service.[267]

The connection to the nearest Russian port, Vladivostok, covers nearly 4,000 km (2,500 mi) of rail – approximately 300 km (185 mi) between Ulaanbaatar and Ulan-Ude on the Russian border and the remainder heading first northeastward and then southeastward (skirting the border with the PRC) before turning south toward Vladivostok on the Sea of Japan. The journey can take more than 3 days on the regularly scheduled services.

Roads

Mongolia's expansive road network comprises some 111,943 km (69,558 mi).[268] The country has the highest road infrastructure availability per capita in the Asia-Pacific region; however, roads are mostly unpaved, and the country has only expanded road infrastructure by a marginal 0.5% since 2015. In 2023, an estimated 34% of rural residents (345,000 people) do not have access to all-season roads, a significantly lower proportion than other countries in the Asia-Pacific region, where about 85% of rural populations enjoy access to all-season roads. [269]

There are some 1,100 km (683 mi) of paved roads in Ulaanbaatar.[270] Roads that connect the capital with nearby provincial centers and with the Russian border are paved; however, further away from the capital, roads are generally unpaved, consisting of dirt tracks, and are less accessible. Due to rough terrain in the western part of Mongolia, transportation costs and travel times are generally increased. Animals are a common means of transport. For example, herding families ride horses, camels are used in arid areas, and yaks and oxen are used in the steppes. A growing number of rural families have bought trucks or tractors, and the number of townspeople owning automobiles has increased. While railways in Mongolia carry the bulk of freight but relatively few passengers, roads transport most of the rest of the freight and almost all passengers. Work began in the early 21st century on a major highway that, when finished, will connect Ulaanbaatar with Mongolia's eastern and western border crossings.[271]

The development of the country's road network has been challenging because of long distances and severe weather conditions. Mongolia's road network is susceptible to natural hazards such as flooding and landslides, which may cause damage, delay transport, or make roads and bridges impassable.[272] Potential damage to road and rail infrastructure due to natural hazards is projected to run US$13.4 million annually.[273]

The Ministry of Road and Transport is the national government policymaking and implementing body committed to creating and developing the country's transport network. The Ministry's efforts are focused on expanding and improving national key transport networks including road, railway, and air transport. It also develops and implements policies and regulations for the transport sector.[274] The GoM is committed to expanding the international and national road networks and to have approximately 7,500 km (4,660 mi) of national paved roads by 2026 with the implementation of the State Policy on the Road Transport Sector and the Steppe Road National Program.[275]

Recent projects seek to improve the reliability, efficiency, and safety of the road network. For example, the ADB in 2023 approved a US$150 million loan to improve

state road network sections in the western region. Areas in western Mongolia generally have suffered from slow development due to remoteness and unpaved roads connecting provincial capitals.[276] In 2024, the World Bank provided US$110 million for the Mongolian Transport Connectivity and Logistics Improvement Project, which seeks to provide infrastructure investments to improve transport connectivity for a more efficient meat supply chain which will focus on improving roads in the provinces with the highest concentrations of livestock. The project also seeks to improve transport and logistics services and to provide technical assistance and capacity building.[277]

Railways

The national railway operator is Ulaanbaatar Railway. It is jointly owned by the GoM and the Russian State Railway.[278] The main rail line in Mongolia is the Trans-Mongolian Railway (officially known as the Ulaanbaatar Railway). It runs north-south through the central part of the country, from the northern border with Russia to the southern border with the PRC's Inner Mongolia Autonomous Region, and it is part of the shortest overland route between Moscow and Beijing. The railway was originally built as a joint Mongolian-Soviet project and utilizes Russian broad-gauge track width. The line was completed in 1956 after nearly 20 years of construction.[279] The railway went through a period of modernization in recent decades, with some of its Soviet-made diesel locomotives replaced with American models.[280]

The Mongolian rail network is comprised of a total of 1,815 km (1,128 mi) of broad-gauge track. The Trans-Mongolian railway consists of 1,110 km (690 mi) of single-track line, which runs through northern and southern sections. Completed in 1949, the northern section extends from the Russian border via Darkhan to Ulaanbaatar. The southern section, completed in 1955, runs from Ulaanbaatar to Zamyn-Uud on the Chinese border, where wheels are replaced to allow the trains to continue traveling on the PRC's standard-gauge network. Another 238 km (148 mi) of track are on a separate network in eastern Mongolia (Choibalsan) that has its own link to the Russian (Siberian) railway. A line was built in the 1980s to connect this line with uranium mines at Mardai, Dornod Province. The remaining 477 km (296 mi) are branches from the main line going to Erdenet, Orkhon Province, and Baganuur (Ulaanbaatar). A planned broad-gauge line would link the coal and copper mines in the southern Gobi to the Trans-Mongolian Railway and then run to Choibalsan.

The Trans-Mongolian railway has a limited capacity and is vulnerable to damage from natural disasters such as landslides and earthquakes. There can also be issues during winter with snow on the tracks causing closures and issues with sand on the southern section of the line in the Gobi Desert. The southern section also has four bridges that are 100-150 m (328–492 ft) long; if damaged during a natural disaster, they could be closed for a period of time as Ulaanbaatar Railway does not have the capacity to repair them quickly, according to the Logistics Cluster.

In the case of a natural disaster requiring international assistance, railways could be used to haul relief items from outside the country. To connect to Russia, the Trans-Mongolian Railway runs north from Ulaanbaatar onto a junction called Zaudinsky, near Ulan Ude in southern Russia where it meets the Trans-Siberian line, which continues to Moscow to the west and Vladivostok to the east. Coming from the PRC, freight is generally trucked to the Mongolian border and then loaded on trains at Zamyn-Uud to be sent to Ulaanbaatar. The cargo handling capacity at the Mongolia-PRC border is reportedly limited and there can often be delays in loading.

There are customs clearance facilities in Sukhbaatar, Darkhan, Erdenet, Zamyn-Uud, and Ulaanbaatar (City Customs). Key stations along the Trans-Mongolian Railway route include, from north to south: Sukhbaatar, 26 km (16 mi) from the Russian border; Darkhan, 98 km (61 mi) south of Sukhbaatar; Ulaanbaatar, 281 km (175 mi) south of Darkhan; Choir, 247 km (153 mi) south of Ulaanbaatar; Saishand, 227 km (141 mi) south of Choir; and Zamyn-Uud, 239

km (149 mi) south of Saishand.[281]

There are plans for new rail construction between Mongolia and the PRC. In April 2025, Mongolia's parliament ratified a deal with Beijing to jointly construct a new cross-border rail connection. Construction of the 19.5-km (12.1-mi) line will allow Mongolia to increase coal exports to the PRC. Once operational, it is expected to increase coal transport capacity by 30 million tons.[282] Construction started in April 2025 and is expected to be completed in two and a half years.[283]

Navigable Waterways

Mongolia has over 3,000 lakes, 6,900 springs, around 3,000 rivers, and 250 mineral water springs.[284] In total, the country has 580 km (360 mi) of waterways. Tugs and barges once hauled cargo on the Selenge River and on Lake Khuvsgul on a regular basis, and many boats that travelled on the lake were chartered for tourist travel. However, concerns about environmental pollution and the growing use of rail and road transport have reduced the number of boats to a few vehicle ferries. The Selenge and Orkhon are navigable but generally see little boat traffic. Lakes and rivers freeze over in the winter.[285] Due to the sparse usage of inland waterways, a lack of riverine connectivity between population centers, and the inability to use waterways as a means of transport during the winter, waterways are unlikely to serve as transport modes for relief goods should a disaster strike the country.

Communications

The National Agency of Meteorology and Environment plays a key role in providing short- and long-term weather forecasts and hydrometeorological analyses. It and other agencies provide information to NEMA's Disaster Management and Warning Center for dissemination through the disaster alert system. Mongolia is working on further strengthening their warning system with efforts to move toward an integrated multi-hazard early warning system. The public receives information through a wide variety of media, including radio, internet, and mobile phone calls and text messages, and television.

Early Warning Systems and Information Sharing

NEMA established a disaster alert system under the Disaster Management and Warning Center in 2013. The system receives information on hazards from technical agencies, including the Institute of Astronomy and Geophysics of the Mongolian Academy of Sciences and the National Agency for Meteorology and Environmental Monitoring (NAMEM). The Center disseminates warning information through four very short wave-length repeater base stations in Ulaanbaatar and, as of 2022, 50 warning siren towers, 2 television stations, and 6 FM radio stations. The amount of information disseminating equipment has decreased since 2013, when there were 60 warning siren towers, 3 television stations, and 10 FM radio stations. This decrease indicates a strong need to update the early warning system (EWS). A 2022 government self-review indicated that the EWS needed to be updated for compatibility with 4G and 5G technologies to improve timely dissemination of disaster warning information.[286]

Systems warning of drought and dzud risk seek to reduce livestock losses. Mass livestock fatalities in dzuds have led to loss of livelihoods for herders, exacerbated poverty, and contributed to rural-urban migration when former herders seek employment in Ulaanbaatar and settle in the growing slums on the outskirts of the capital. Mongolia aims to establish two-way information and communication complexes in 18 provinces and 13 high-risk districts to provide herders with local news and early warning for harsh weather to ensure their preparedness, as stated in the national development plan, Vision 2050.[287]

NAMEM utilizes and maintains an observation network of 137 meteorological observation stations, 181 posts, and 152 hydrometeorological stations across the country. Collected land-based and satellite data are processed with geographical information system (GIS) and other software to produce agrometeorological products. The hydrological

observation network's 152 stations (18 on lakes, 134 on rivers) are complemented by 99 hydrobiology sampling points, 37 ground water observation points, 4 glacier research stations, 18 spring or small stream observation points, and 30 permafrost or ground temperature observation points. NAMEM receives and analyzes real-time data and images from Polar Orbiting Satellites such as the MODIS, Geostationary Meteorological satellite FY2G, FY4A, and Himawari-9. The satellite data and GIS are used to diagnose and determine the actual status of cloud and precipitation, snow cover, vegetation cover, and wildfires.

NAMEM generates weather forecasts for periods ranging from three hours to three months to encompass forecasts regarding the various hazards hanging over the country. NAMEM's Institute of Hydrology provides information on water levels and flow rates, as well as forecast information related to agriculture and the environment, including quality of air, surface water, and soil. All weather information is disseminated through NAMEM's website, TV, radio, Facebook, and other channels. During disasters, NAMEM and NEMA disseminate warning messages using electronic signs, sirens, and text messages through agreements with mobile carriers to deliver disaster and weather information.

Since September 2019, the public has used the weather mobile-phone application "Tsag Agaar," which identifies users likely to be affected by extreme weather events and provides them with timely weather forecasting services at the city or province level. In 2015, NEMA established the national SMS system for weather and pasture information. It is delivered directly to herders through a collaboration with Mercy Corps. In 2017, NEMA signed a Memorandum of Understanding with four national mobile service providers to grant the platform a single public service phone number, which expanded coverage to all mobile phone users in Mongolia, improved service quality, and reduced service costs. SMS services have since expanded, with support from Mercy Corps and the World Food Programme (WFP), to include more types of information on weather, pasture, and agricultural prices, as well as greater interagency collaboration among NEMA, NAMEM, and the NSO.[288]

A large proportion of herders (81%) report that they receive warning information about dzud and weather events. According to a survey of 811 herders who received early warning information, most receive it via television (87%), followed by SMS or a phone call (63%), local weather stations (52%), NAMEM (45%), social media and internet (34%), community and neighbor networks (29%), local administration office of the sub-district leader (24%), province and district governors' office notifications and alerts (17%), other government notifications and alerts (14%), traditional methods of predicting the weather (12%), and radio (11%).[289]

NAMEM particularly plays an important role in providing early warning of dzud by providing a dzud risk map to all stakeholders. Annually, on 1 December, the likelihood of a dzud occurring between December and April is calculated from temperature and precipitation data observed the previous summer (May–July). Accuracy of the dzud index depends on accurate summer weather data observations, which could be further improved by increasing the frequency of observation records and, ideally, would also assimilate real-time changes in winter meteorological conditions. The GoM had prioritized the development of a dzud prediction system and this dzud prediction index was developed by Japan's Chuo University with support from Japan's Ministry of Environment.[290]

Dzud risk maps provide crucial snapshots of season and weather conditions and are created using a combination of remote sensing data and ground observation data. Various parameters are considered; they include summer condition, pasture carrying capacity, numbers of grazing livestock, biomass (based on 1,500 sites), precipitation, temperature, drought index, snow depth, snow cover, air temperature forecast, and precipitation forecast. The GoM officially determines a dzud hazard to be a disaster when 50% of the following criteria are met nationwide:

1. The following hazard and incident conditions are in place for at least 14 days:
   - Weather temperature is colder by 3°C (5.4°F) or more than the multi-year average
   - Snow density is higher than 0.25 grams/cubic centimeter (0.14 ounce/cubic inch) in any given area
   - Average snow height is 25 cm (9.8 in) or more in mountain or forest-steppe zones, or 22 cm (8.7 in) or more in the steppe zone, or 12 cm (4.7 in) or more in desert areas
2. Affected population is 50 or more people
3. Livestock mortality rate reaches 2% or more nationwide
4. Scope covers at least one-third of the country
5. Damage amounts to 2% or more of local government funds[291]

NAMEM diagnoses criteria #1 by establishing and publishing dzud and near-dzud conditions. The HCT in Mongolia, through the Inter-Sector Coordination Group, also monitors the evolving situation bi-weekly and tailors their response to urgent humanitarian needs and government requests. Dzud conditions are very dynamic. Therefore, closely monitoring the dzud situation across the country is critical to tailor early action and response efforts to be timely and effective. The onset of and recovery from dzud conditions vary across geographic locations, and early action and response activities cannot be uniformly applied to all provinces.

Droughts are a commonly occurring hazard in Mongolia, and summer droughts followed by harsh winters contribute to dzuds. DroughtWatch-Mongolia is a multi-satellite, multi-scale, drought observation system that aims to provide real-time, wide-ranging drought information for disaster prevention and mitigation departments across the country.[292] It includes an auto-processing chain from satellite data downloading, pre-processing, index calculation, drought monitoring, statistics, and analysis, to data management.[293] It originated in a project entitled "Strengthening Mongolia's capacity to monitor and warn drought/dzud," initiated in 2013 following a request by Mongolia to the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) to pilot its Regional Cooperative Mechanism for Drought Monitoring and Early-Warning (Regional Drought Mechanism). The Mongolia pilot program involved cooperation between UNESCAP and Mongolia's National Remote Sensing Centre (NRSC) within the Information and Research Institute of Meteorology, Hydrology and Environment (IRIMHE), with technical support from the Institute of Remote Sensing and Digital Earth (RADI, since renamed the Aerospace Information Research Institute) of the Chinese Academy of Sciences (CAS) and further support from three service nodes in India, the PRC, and Thailand.

After a 5-year development and learning process, DroughtWatch-Mongolia was officially handed over to Mongolia on 17 September 2018 by UNESCAP and RADI/CAS.[294] DroughtWatch-Mongolia can produce daily, 5-day, 10-day, monthly, and seasonal monitoring using over 40 drought composite methods with spatial variation and temporal dynamics. Based on this system, the NRSC produces real-time drought monitoring for disaster prevention and mitigation departments, servicing the Ministry of Nature, Environment and Tourism and the Ministry of Food, Agriculture and Light Industry. It also disseminates to local meteorological departments.[295]

UNESCAP's Regional Drought Mechanism platform provides timely, free, satellite-based data, products, and training to drought-prone countries to enhance the capacity of governments for agricultural monitoring and early-warning. The UNESCAP program brings together countries more experienced in space applications and drought management (Australia, India, the PRC, and Thailand) with drought-prone countries (Afghanistan, Bangladesh, Cambodia, Kyrgyzstan, Mongolia, Myanmar, Nepal, and Sri Lanka) to enhance the capacity of the latter to use integrated space and ground-based data for drought monitoring and early warning.[296] The

Regional Drought Mechanism is a flagship program of UNESCAP's Regional Space Applications Programme for Sustainable Development (RESAP), which promotes the application of space technology and GIS to support DRR and inclusive and sustainable development.

The dzud risk maps and early warnings guide Mongolia's DM actions and are crucial to DRR. At the national level, NEMA cross-references the early warning data with NSO data to assess the potential impact on people, and it is these projections of potential impact that inform discussions within the SEC or the Cabinet. At the district level, the effectiveness of the EWS can be less clear. Officials sometimes seem to prioritize the date of the first snowfall over other drought indicators; this perception may indicate that reducing any disconnect between the information provided by the EWS and actions taken at the local level is an area ripe for improvement. The timing of dzud risk data publication is crucial for herders, who have a limited period to make critical decisions regarding selling livestock, purchasing additional hay and fodder, or relocating to alternative pastures. While October is the peak month for winter preparations, actions begin as early as August and September. Timely access to accurate dzud risk information is essential for herders to make informed decisions and mitigate their potential losses.[297]

NEMA is working toward developing an integrated EWS, per discussions with the ADB in August 2024. The ADB project, "Strengthening the Integrated System of Disaster Early Warning in Mongolia," would include improved preparedness of radio communication and information equipment for disaster prevention in local and emergency organizations.[298] During 26-30 August 2024, Mongolia and Bhutan delegates participated in training in South Korea on DRR and climate change adaptation, with a focus on multi-hazard early warning system (MHEWS). Particular attention was paid to assessing needs and priorities for scaling-up EWS to the national level. The training was the first held jointly by the UNDRR Global Education and Training Institute in collaboration with Green Climate Fund specialists. The training also included elements to help bridge MHEWS gap assessment and planning with funding channels.[299]

Information Sharing Focal Points

No single entity can have all the information needed by stakeholders responding to an emergency. Sharing information among technical agencies, coordinating authorities, and implementing partners both in-country and among potential responders promotes timely, efficient, and effective delivery of disaster relief. The following are some focal points within Mongolia, in the wider region, and around the world that have and share data and information regarding the hazards that impact Mongolia's communities.

Government Offices and National Organizations

National Emergency Management Agency
6th Khoroo, Sukhbaatar District,
Ulaanbaatar, Mongolia
Tel: +976-51-263581 / +976-51-265726
Email: *info@nema.gov.mn*

National Agency for Meteorology and Environmental Monitoring
Baga toiruu - 3, Juulchin Street, 4th Khoroo,
Chinggeltei District, Ulaanbaatar - 15160
Tel: +976-51-264135 / +976-11-326-611
Email: *admin@namem.gov.mn*

Mongolian Red Cross Society
MRCS Building, Peace Street, 1st Khoroo
Sukhbaatar District, 14210
Ulaanbaatar 13
Tel: +976-7777-0508
Email: *info@redcross.mn*

International Agencies

United Nations in Mongolia
UN House
United Nations Street-14, Sukhbaatar District
Ulaanbaatar 14201, Mongolia
Web: *https://mongolia.un.org/en*
Facebook and X: unmongolia

IOM
United Nations Street -14
Ulaanbaatar 14201
Email: *iomulanbator@iom.int*
Web: *https://www.iom.int/countries/mongolia*
Facebook: IomMongolia
X: IOMMongolia

UNDP
United Nations Street -14
Ulaanbaatar 14201
Email: *registry.mn@undp.org*
Web: *https://www.mn.undp.org/*
Facebook: undp.mongolia
Instagram: undpmn
X: UNDPMongolia

WHO
United Nations Street -14
Ulaanbaatar 14201
Email: *who.mog@wpro.who.int*
Web: *http://www.wpro.who.int/mongolia/en/*
Facebook: WHO.MGL
X: WHOMongolia

FAO
United Nations Street -14
Ulaanbaatar 14201
Email: *FAO-MN@fao.org*
Web: *http://www.fao.org/mongolia*
Facebook / X: FAOMongolia

UNICEF
United Nations Street -14
Ulaanbaatar 14201
Email: *ulaanbaatar@unicef.org*
Web: *http://www.unicef.mn/*
Facebook / Instagram: unicefmongolia
X: UNICEF_Mongolia

UNFPA
United Nations Street -14
Ulaanbaatar 14201
Email: *contact@unfpa.org.mn*
Web: *http://mongolia.unfpa.org/*
Facebook: UNFPA.Mongolia
X: UNFPA_Mongolia

Save the Children
Save the Children Japan
Yamada Building 4th Floor, 2-8-4 Uchikanda
Chiyoda-ku, Tokyo, 101-0047
Tel: +81-3-6859-0070
Web: *https://www.savechildren.or.jp/lp/scjapan_english/*

IFRC Asia Pacific Regional Office (Kuala Lumpur, Malaysia)
Tel: +60-19-268-6503
Web: *https://www.ifrc.org*
X: IFRCAsiaPacific

Telecommunications Infrastructure

Mongolia currently employs SMS-based platforms – e.g., Trilogy Emergency Relief Application – and direct text message notifications issued by mobile network operators to disseminate critical information during emergencies. The Emergency Telecommunications Cluster (ETC) has actively supported national preparedness efforts by advancing and expanding Mongolia's emergency telecommunications infrastructure.[300] In April 2022, the ETC facilitated a comprehensive Emergency Telecommunications Simulation Exercise in collaboration with key government stakeholders to strengthen coordination and response capabilities.[301]

Mongolia's vast geographic expanse, low population density, and widely dispersed rural communities have posed significant challenges to the development and maintenance of telecommunications infrastructure, particularly in remote areas. Historically, inadequate

information and communications technology (ICT) services disproportionately affected rural populations and nomadic herders by limiting access to education, information, and emergency response capabilities.[302]

In recent years, the GoM, supported by organizations such as the World Bank and the UN Sustainable Development Group, has implemented a range of initiatives to improve ICT access. These efforts include subsidies for mobile network expansion, the installation of satellite-based public telephones, and the provision of broadband internet in select urban centers. Notable programs such as "Ger Internet," which delivers wireless broadband to remote herder households, have helped bridge the digital divide.[303] Concurrently, the "e-Mongolia" initiative aims to enhance digital literacy in rural communities. In support of these efforts, the UNDP established Mongolia's first Digital Training Facility, offering foundational digital skills to underserved regions and equipping citizens with essential competencies for the digital era.[304]

Mobile cellular usage in Mongolia is widespread. As of early 2024, the country recorded approximately 5.13 million active mobile cellular connections, equivalent to 147.8% of the total population. While mobile subscriptions far outpace fixed-line connections, the latter have also experienced modest growth. Fixed-line subscriptions increased from 475,290 in 2022 to 524,075 in 2023.[305] By 2024, internet penetration had reached 83.9% of the population. Furthermore, 89.4% of mobile connections were classified as broadband, indicating access to 3G, 4G, or 5G networks.[306]

Mongolia's telecommunications sector is relatively mature, dominated by a few key players, particularly in the mobile market. MobiCom and Unitel lead the sector, followed by Skytel, Supernet, and G-Mobile. While Telecom Mongolia, the state-controlled telecommunications company, remains the primary provider of fixed-line services, the mobile segment continues to be the primary engine of growth and competition. The government has played a proactive role in shaping the sector through targeted reforms and policy initiatives, promoting foreign investment, and encouraging the development of network infrastructure and ICT services.[307] In 2025, Mongolia officially launched its 5G network, marking a major milestone for the Ministry of Digital Development, Innovation, and Communications. Government forecasts estimate that 5G technology could contribute between 1% and 4% of the country's GDP by 2030.[308]

Mass and Social Media

Mongolia's media landscape includes a mix of government-controlled and private outlets across television, radio, print, and digital platforms. Multichannel TV is widely available through cable, satellite, and Internet Protocol Television services. Television remains the dominant form of media, commanding over 60% of the national media market.

While press freedom is generally upheld, concerns persist regarding the lack of transparency in media ownership and the prevalence of self-censorship. According to Freedom House, journalists often refrain from reporting critically on political or corporate entities to avoid potential repercussions. Reporters Without Borders notes that journalists and media outlets are frequent targets of defamation lawsuits, accounting for more than half of all such cases in the country. Although Mongolia has a high literacy rate, print media circulation remains limited. Some newspapers are directly affiliated with political parties, which may influence their editorial content and diminish perceived impartiality.[309]

Mongolia has a highly engaged online population, with social media serving as a primary channel for communication, entertainment, and news. Many users rely on these platforms as their main source of information. Women show slightly higher engagement than men on platforms such as Instagram and Facebook. Facebook is the most widely used platform, serving as a hub for social interaction, news, and business activity. It is followed by Instagram and other platforms including Pinterest, X (formerly Twitter), and YouTube.[310]

Utilities

Mongolia has achieved universal electricity access through strategic investments combining grid extension with distributed renewable solutions, yet the power sector remains vulnerable due to aging infrastructure, import dependence, and coal reliance. While the Energy Regulatory Commission (ERC) provides centralized oversight, generation capacity constraints and transmission bottlenecks limit resilience against disruptions. Water and sanitation coverage presents greater challenges, with significant portions of the population lacking access to basic drinking water services and even fewer people having safely managed water systems. Climate change impacts on water resources, combined with infrastructure limitations across Mongolia's vast territory, underscore critical gaps in utility resilience despite policy advances.

Power

As of 2023, Mongolia had achieved universal electricity access, with 100% of the population connected to the power grid.[311] Mongolia reached this milestone by combining grid extension for populated areas with distributed solar solutions for remote herders, rather than by building expensive transmission lines across the entire vast territory.

The country's power sector is overseen by the ERC, a government organization, which is responsible for regulating energy generation, transmission, distribution, supply, and dispatching, as well as approving prices and tariffs, awarding licenses, and monitoring compliance. The ERC operates under the supervision of a Board of Commissioners appointed by the Prime Minister. The Commission's objective is to ensure fair competition among generators and suppliers, while protecting the rights of both consumers and licensees.[312]

Power generation in Mongolia is state-owned and highly subsidized.[313] The country possesses abundant coal reserves, but its domestic electricity generation is constrained by outdated infrastructure and limited output capacity. As of 2023, Mongolia's total installed generation capacity stood at approximately 1.51 gigawatts (GW),[314] and the total increased slightly to 1.6 GW by October 2024.[315]

Mongolia's domestic generation has not kept pace with growing demand, and the country has come to rely on electricity imports. In 2023, approximately 22.3% of electricity was imported from Russia and the PRC, with western provinces particularly dependent on cross-border supply.[316] The country's power grid is heavily reliant on a few aging thermal power plants, which are decades old and suffer from poor efficiency, limited output, and frequent maintenance issues.[317] These infrastructure limitations, along with transmission bottlenecks, restrict Mongolia's ability to meet peak demand independently.

Between 2000 and 2022, Mongolia saw a steady rise in per capita electricity consumption, reflecting increased industrialization and urban demand. In 2022, industry was the largest electricity consumer, accounting for 62% of total final consumption, followed by residential use at 24%, and agriculture and forestry at just 1%. An additional 12.9% fell into other or non-specified categories.

Coal plays a central role in Mongolia's economy and energy system. In 2023, coal contributed significantly to the country's export revenues and accounted for roughly 90% of its power generation. In 2022, about 86% of electricity was generated from coal, followed by oil (4.4%), wind (6.6%), solar photovoltaic (2.4%), and hydro (0.81%).[318] However, the dominance of coal has presented barriers to clean energy adoption. The influence of the coal industry, coupled with inadequate infrastructure, has slowed the integration of renewable energy despite Mongolia's abundant solar and wind resources. Additionally, in informal urban settlements, especially in Ulaanbaatar, residents often burn low-quality coal for heating, exacerbating air pollution and contributing to some of the worst air quality in the world, with severe public health consequences.[319]

Water and Sanitation

Water security is a critical concern in Mongolia. Water access underpins both economic growth and sustainable development. Approximately 40% of the country's economy relies on water-intensive sectors such as mining, agriculture, and textile manufacturing. However, mounting pressure on water resources is driven by rising demand, climate change, aquifer depletion, and pollution, and shortfalls threaten the sustainability of these sectors.

Groundwater remains Mongolia's primary water source, yet it is becoming increasingly scarce, particularly in high-demand areas like Ulaanbaatar, the Southern Gobi Desert, and key agricultural and grazing regions. Because of the high seasonal variability of river flows and since rivers freeze in winter, groundwater is tapped as Mongolia's main water source for drinking and industrial water. Current projections suggest that national water demand could exceed available supply by 2040 – or even earlier – without significant intervention.[320]

Mongolia achieved substantial progress in basic WASH infrastructure coverage by 2023, with 93% of the population having access to improved drinking water sources (99% urban and 75% rural) and 93% of the population using improved sanitation facilities (99.1% urban and 75.6% rural). The country has also made notable strides in hygiene practices, with over 90% of households having handwashing facilities equipped with water and soap.

Nevertheless, Mongolia faces WASH challenges; its unique geography and socioeconomic conditions create multiple barriers to achieving safely managed WASH services. Some of the challenges are:

- Water quality and safety gaps: Despite widespread infrastructure access, 37.5% of household drinking water shows bacterial contamination, with rural areas disproportionately affected (53.6% contamination rate v. 32% for urban), indicating serious challenges in water treatment and quality assurance.[321]
- Geographic and service delivery challenges: Mongolia's vast territory, dispersed population, and extreme weather conditions create significant obstacles to maintaining consistent, high-quality WASH services, particularly in remote rural areas where only 9% have safely managed water services compared to 38% in urban areas.[322]
- Health risks from inadequate sanitation practices: Common use of open-pit latrines in rural areas increases the risk of infectious diseases, including typhoid fever, dysentery, and hepatitis A, while contributing to water contamination issues. Only 3.8% of rural residents have waste removed off-site for proper treatment, and limited access to safely managed waste treatment compounds health risks.[323]
- Resource and governance constraints: Limited prioritization at policy and budgetary levels hampers the transition from basic infrastructure provision to comprehensive, safely managed WASH services that ensure both access and quality.[324]

Despite widespread access to improved water sources, more than one-third (32.0% urban, 53.6% rural) of household drinking water shows bacterial contamination, indicating serious gaps between access and safety. This contamination problem means that only 31% of the population has access to safely managed drinking water services. The data show a persistent urban-rural divide, with rural populations consistently lagging behind urban areas by 20-30 percentage points across most indicators. Rural areas face particularly acute challenges, with only 9% having safely managed water services compared to 38% in urban areas, and over half (54%) of rural household water showing contamination.[325]

Mongolia's policy landscape transformed dramatically in 2024 with the first Public Health Law taking effect that April, and it marked an historic shift from medical care financing to public health prevention.[326] While earlier efforts established important foundations – e.g., national standards for sanitation facilities (2015) and water safety guidance for small communities (2015) – the Public Health Law signaled a comprehensive, prevention-focused strategy that directly addresses systemic WASH challenges.

Health Systems

Mongolia generally has a strong capacity to prevent, detect, and respond to public health threats.[327] Its robust laboratory systems, emergency response mechanisms, and enhanced access to health care contribute to this strength. Its commitment to the SDGs, particularly SDG 3 on "Good Health and Well-being," is demonstrated through Vision 2030 and the State Policy on Health (2017-2026).[328] While health indicators such as maternal and child mortality, new human immunodeficiency virus (HIV) infections, adolescent fertility rates, and births attended by skilled personnel are progressing towards achieving the SDGs, challenges persist in addressing non-communicable diseases, infectious diseases (e.g., hepatitis and tuberculosis), and mortality attributed to household air pollution.[329]

Mongolia is progressing toward achieving universal health coverage by enhancing primary health care and expanding health insurance. The country's healthcare system was influenced by Soviet-era practices and medical structures. Since the 1990s, it has been shifting towards a decentralized, mixed health system characterized by public-private partnerships. This transition has occurred concurrently with a decline in government health expenditure, which has historically underpinned the financing and delivery of quality primary health care. Furthermore, while Western medicine is widely used, traditional Mongolian medicine plays a vital role in health care, especially in rural areas, where it often serves as the primary treatment option.[330]

The Ministry of Health (MoH) serves as the principal agency governing health care. It is responsible for formulating and implementing national health policies and strategies. It oversees the healthcare system via financial management, regulatory frameworks, and human workforce development, while also playing a vital role in health emergency preparedness and response.[331]

The WHO's Country Cooperation Strategy (CCS) (2017–2021) for Mongolia outlines the MoH priorities, in collaboration with partners, to strengthen health systems, enhance public health programs, and promote healthier environments through coordinated, multisectoral efforts. The CCS provides a clear strategic framework for WHO's work in Mongolia by ensuring consistency with global, regional, and national health strategies under a structured governance approach. Furthermore, the CCS for Mongolia is built around three priorities: 1) building resilient health systems, 2) strengthening integrated, people-centered public health programs, and 3) promoting health and healthy environments.[332]

Mongolia's health system operates as a two-tier structure, encompassing both primary and specialized care, including referral services. At the primary level, care is delivered through a network of family group practices located at primary health center districts. Referral-level general hospitals at the provincial level provide both primary and secondary services. In Ulaanbaatar, the healthcare infrastructure includes polyclinics (clinics offering a wide variety of healthcare services), district hospitals, tertiary hospitals, and specialized centers, a concentration that ensures access to higher-level medical care.[333] Local healthcare facilities are available at each administrative level to meet community needs. Overall, the health system comprises approximately 4,000 healthcare facilities, including public hospitals, inpatient private hospitals, and outpatient clinics. As of 2022, the country had an average of 80 hospital beds and 30 medical doctors per 10,000 people, with Ulaanbaatar maintaining higher ratios compared to the provinces.[334]

Despite notable achievements, the healthcare system faces persistent challenges and barriers, primarily due to the country's low population density and the remoteness of its vast territory. Accessing healthcare services, particularly within nomadic regions, remains difficult and can be especially challenging during emergencies because long distances and challenging terrain often hinder timely medical attention.[335] To address these gaps, mobile health technologies have been introduced since 2016; they provide herders and rural populations in remote areas with essential healthcare services.[336] However, additional obstacles continue to affect service delivery; they

include a shortage of healthcare professionals, insufficient funding for public health initiatives, outdated medical infrastructure, and limited medical resources in rural areas.[337]

Mongolia's response to the COVID-19 pandemic underscored the importance of a resilient healthcare system with strong preparedness and response capacities for public health emergencies. The emergency operations staff of the SEC played a central role in coordinating and implementing nationwide COVID-19 prevention and response measures. The SEC directed pandemic response activities, while the MoH managed and organized efforts in line with the State Disaster Protection Plan, in alignment with Government Resolution No. 416 (2015). To support these efforts, the EOC of the SEC was established, bringing together representatives from the SEC, the State Disaster Protection Services, and other relevant agencies.[338]

Mongolia has been strengthening its capacity to respond to public health emergencies by developing Public Health Emergency Operations Centers (PHEOC), which are vital for ensuring timely and coordinated responses. On 28 February 2025, Mongolia launched its PHEOC with support from the WHO and funding from the Pandemic Fund. Subsequently, in April 2025, the MoH, the National Center for Communicable Diseases, NEMA, and other key ministries and agencies participated in a 5-day virtual simulation exercise. The scenario tested Mongolia's readiness to manage a complex, multi-sectoral public health emergency through a simulated disaster event. A central focus of the exercise was evaluating the three operational modes of the PHEOC—Watch, Alert, and Response.

- Watch mode tested early warning, monitoring, and risk assessment capabilities.
- Alert mode assessed escalation procedures and intersectoral coordination mechanisms.
- Response mode activated the full incident management and emergency coordination system.[339]

The training improved key stakeholders' understanding and practical application of the three PHEOC modes, strengthened cross-sector communication and coordination, and identified critical gaps in standard operating procedures, legal frameworks, and multi-sectoral collaboration.

Shelter and Housing

Mongolia operates a multi-tiered emergency shelter system combining ger material distribution, school-based evacuation centers, and MRCS facilities.[340] Current infrastructure includes MRCS shelters and service centers with temporary stay limitations, supplemented by school facilities as primary evacuation centers.[341] Planned improvements include substantial ADB investments in ger district development and climate-resilient housing units.[342]

Recent emergencies provide examples of how shelter is dealt with during emergencies. During the snow and dust storms of 2023, 149 households completely lost their gers, and 288 gers were partially damaged. IFRC reported that the GoM distributed 50 gers to people who lost their homes.[343] During the 2023-2024 dzud, it was reported that 201 households were evacuated to temporary centers.[344]

Rural housing demonstrates low climate resilience drives substantial climate-induced rural-urban migration, as traditional gers are vulnerable to complete structural loss during extreme weather events.[345] Urban resilience also faces critical constraints: Ulaanbaatar's ger districts house over 60% of the capital's population but lack adequate infrastructure, while the city confronts housing shortages with limited affordable housing availability.[346]

Modernization initiatives target both contexts through the World Bank's "gentle densification" approach for culturally sensitive ger district redevelopment and updated construction standards incorporating climate adaptation requirements.[347]

Mongolia's legal framework centers on the Disaster Protection Law,[348] but the Law on State Reserve regulates emergency shelter stockpiling through regional distribution points with deployment requiring government decision.[349] Displacement policies appear to

emphasize temporary assistance rather than permanent resettlement.[350] However, policies addressing long-term housing integration for climate-displaced populations remain limited, particularly for rural-urban migrants who permanently lose livestock-based livelihoods.[351]

Food Security

Day-to-day food security is a challenge for many Mongolian families, and disasters can further disrupt access to food.

Mongolia's culture rests on traditional pastoralism that delivers both livelihoods and food for domestic consumption and export. In a normal year, the summer months bring sufficient rain and mild temperatures to allow grasslands and crops to mature and livestock to fatten before the onset of winter. The "lean season" generally arrives in mid- or late-winter when Mongolia's people and livestock have exhausted crops and fodder harvested in the autumn but summer crops are not yet available. The peak of food insecurity is commonly in April, just as the birthing season for sheep, goats, cattle, and horses arrives, bringing skyrocketing demand for animal feed to ensure that mother animals can produce sufficient milk for newborns.[352]

In 2025, after a decade of disrupted grazing and extreme lean seasons, the country is grappling with a long-term challenge at the nexus of food security and resilient livelihoods. The relationship between animal feed and human food in Mongolia is quite direct, as many herders eat mostly animal products – meat and dairy. With herds decimated by summer drought and winter dzud, herding families must seek alternative, mostly market-based, food sources. Concurrently, rural-to-urban migration has divorced many Mongolians from traditional methods of food access, and herding livelihoods are becoming less common. When a drought or dzud puts urgent pressure on the food supply, emergency food purchases and distribution become necessary.

A 2021 study by national agencies and international organizations found that an estimated 22% of Mongolians did not have regular access to sufficient dietary inputs to sustain a normal, active, and healthy life.[353] Wealthier income groups have a markedly larger (more grams per day) and more diverse diet than do lower-income groups who rely on domestic production, which is heavily skewed toward meat and dairy. As of 2020, an estimated 97% of fruits, 40% of vegetables, and 35% of wheat-flour products were imported and were, therefore, more expensive and subject to global food price swings. Despite the expense of imported food products, between 2001 and 2022, Mongolia's total imports of food products increased fivefold.[354]

Efforts to ensure greater self-sufficiency in various basic food products have run into a difficult business environment marked by complex supply chains, high cost of capital, limited branding opportunities, and workforce obstacles.[355] Small-scale household producers deliver nearly 90% of livestock and 75% of domestic crops, but their size and remoteness mean they are removed from market avenues, credit opportunities, and information sources. Meanwhile, food processors – also mostly small-scale – are concentrated in cities, far from producers. In addition to these sharp market gaps, the livestock herds on which rural livelihoods are built confront long-term risk, as an estimated 70% of pastureland is degraded. Unsustainable animal husbandry practices are further degrading pastureland.[356]

Despite the chronic challenges for rural communities, food insecurity is assessed as higher in urban areas due to a combination of informal employment, reliance on less nutritious commercial food products, and exposure to price shocks.[357] In the past decade, more retail grocers have emerged in urban areas, and while this development has positively impacted the overall market for food in the country, it has had a deleterious effect on nutrition as energy-dense, nutrient-poor foods are less expensive and more available within urban areas of Mongolia.[358]

With much of the population verging on food insecure in normal times, it is worth considering how a disaster relates to hunger.

Since 2015, recurrent dzuds have eroded rural coping capacity. Herding families whose livestock perish and who do not receive support to restock commonly move to Ulaanbaatar's

ger districts, where they join other economic migrants or families impacted by earlier dzuds. While dzud is nominally a slow-onset condition for which authorities can help communities prepare, a succession of disastrous dzud years erodes the resources needed to take anticipatory action. Instead, dzud-affected herders come to rely on emergency food aid and livelihoods support delivered by national emergency managers and international humanitarian partners.

Figure 13 illustrates "normal" annual production versus dzud impacts on food security and livelihoods.[359]

The response of the Mongolian government and its partners to the 2023-2024 dzud may also illustrate how food insecurity is most commonly addressed. Throughout the crisis period, NEMA and the SEC operated the EOC to coordinate the response.

- From mid-2023 onward, the government predicted high levels of dzud risk and began to stockpile fodder.
- The government undertook pre-emptive de-stocking not only to generate the best price possible for already fattened animals but also to reduce the herd size that could need emergency feed.
- Between December 2023 and February 2024, the government discounted and distributed hay and fodder.
- In January 2024, the government sought HCT assistance with meeting basic needs – food (human and animal), medical supplies, cooking and heating fuel, and cash assistance – for affected herder households.
- The HCT established its coordination structure around six sectors – education, nutrition, WASH, food security and agriculture, protection, and health.
- The food security and agriculture sector assessed that 130,000 people were in need and targeted 76,700 of the most vulnerable people – i.e., households with more than 400 head of livestock and residing in areas where livestock mortality during the season had already reached 3.5%.
- "Cash+" assistance delivery comprised cash assistance to allow recipients to set their own priorities along with in-kind food (human and animal) and health packages.
- Distributions to herder households were facilitated by emergency road clearance and allocation of winter service vehicles to provincial governments.

Organizations participating in the food security and agriculture interventions were: ADRA, the FAO, Good Neighbors, MRCS, People in Need, SC, UNDP, UNICEF, and WV Mongolia.[360]

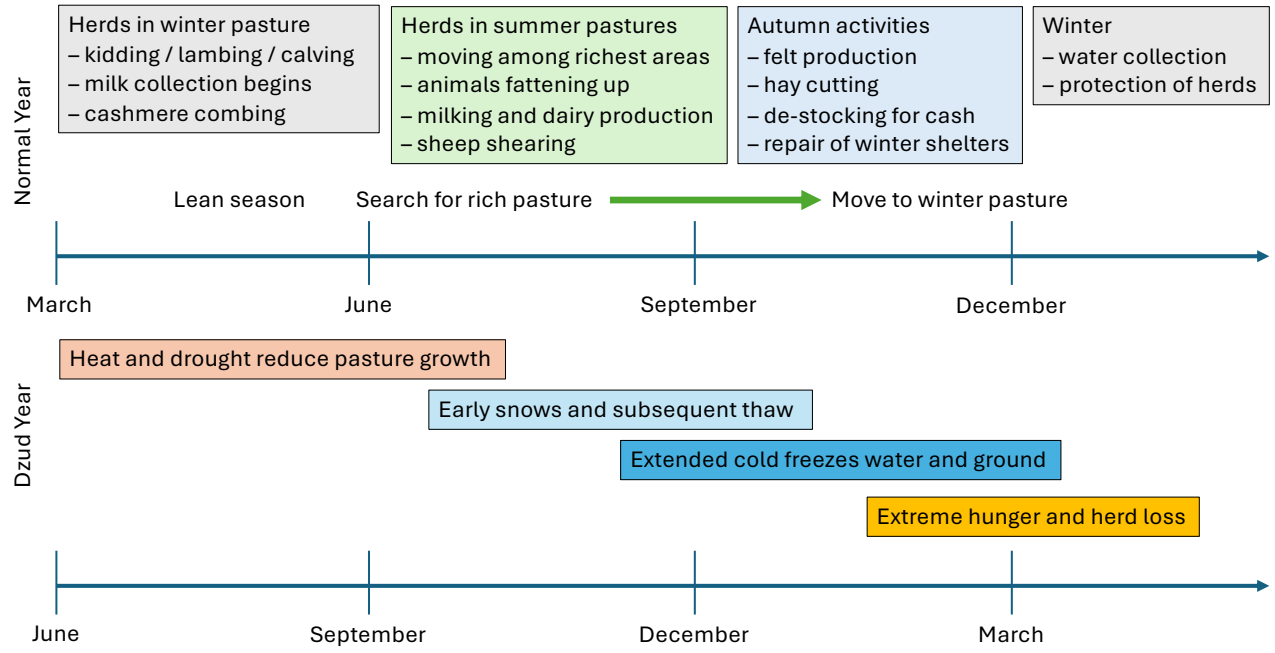


Figure 13: Timeline of a Dzud

CONCLUSION

Mongolia is exposed to various hazards, ranging from earthquakes and flooding to temperature extremes. Among the country's unique hazard characteristics is dzud, which combines the effects of abnormal – too little, too much, too early, or too late - precipitation and extreme freezes. The immediate threat posed by these hazards to lives and livelihoods is matched by the longer-term threat posed to the cultural and socio-political well-being of Mongolia's people. Dispossession of herders and rural-to-urban migration are sapping the vitality of traditions that have sustained the people and formed the underpinnings of the post-Soviet state's stability.

The people and government of Mongolia work to build resilience against both rapid- and slow-onset hazard events. Since 2017, the amended Law of Disaster Protection has allowed national and local leaders to prioritize DRR and preparedness. Under the NCDRR and the 31 LCDRRs, collaboration on policies and programs to reduce disaster risk has drawn expertise and participation from across Mongolian society. Meanwhile, the SEC and LECs lead emergency responses by coordinating resource mobilization and monitoring operations, as conducted by NEMA and the LEMAs.

Since 2003, NEMA has brought together the capacity to respond with the responsibility for expanding partnerships and cooperation across local, national, and international practitioners. From the national to local levels, government DM structures are expected to integrate citizen and private-sector participation. Sitting under the Prime Minister, NEMA maintains strategic linkages across the national government and with major national and international NGOs. Below the national level, regional, provincial, and city emergency management centers and departments support activities across the DM cycle. The district emergency management divisions execute responses, often with the support of the MAF, which regularly mobilize to conduct search and rescue or execute emergency engineering projects.

By necessity, Mongolia maintains close and cooperative ties with the Russian Federation and the PRC. These neighbors and Mongolia cooperate on economic and trade programs that support Mongolia's economic stability and resource base for sustainable development. However, there is little evidence that they support Mongolia's long-term DM and resilience work. Rather, for environmental, socio-economic, and some infrastructure development, the country has developed and maintained its "third neighbor" policy, which has allowed the country to build strong bilateral partnerships with European states, India, Japan, South Korea, Türkiye, and the U.S. Various civilian and military, government and non-governmental sources of support have helped bolster capacity within NEMA and the MAF for planning, information sharing, and assessment of hazards, needs, and responses.

The country also emphasizes work with multilateral institutions and inter-governmental organizations that help states invest in and practice all-hazards preparedness, disaster planning, and modern financing for risk management. The presence of various UN system agencies in the country allows it to prepare for, mitigate, respond to, and recover from hazard events. This work is especially important as sustained multilateral and coordinated work will be required to ensure that Mongolia's people have a healthy environment in which to practice their culture and livelihoods as climate-induced shocks threaten to continuously erode their coping capacity.

APPENDICES

Risk Indices

Risk calculation takes into account exposure to hazards, vulnerability, and coping capacity. Addressing all of these elements is important in reducing and mitigating disaster risk. Various indices emphasize structural or institutional risk while others emphasize hazards or losses (human and economic). Regardless of emphasis, disaster risk calculations use some form of the equation:

Disaster Risk = (Hazard × Vulnerability) / Capacity[361]

Taken from the UNDRR glossary, definitions will help clarify this formula:

- Capacity - The combination of strengths, attributes, and resources available within an organization, community, or society to manage and reduce disaster risks and strengthen resilience.
- Disaster risk - The potential loss of life, injury, or destroyed or damaged assets, which could occur to a system, society, or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability, and capacity.
- Hazard - A process, phenomenon, or human activity that may cause loss of life, injury, other health impacts, property damage, social and economic disruption, or environmental degradation.
- Vulnerability - The conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of an individual, a community, assets, or systems to the impacts of hazards.[362]

In general, the goal of indexing risk is to inform decision makers and DRR practitioners of the level of risk to and underlying capacity of the target community. The various risk calculation models support proactive crisis management frameworks and are helpful for prioritizing allocation of resources and for coordinating actions focused on anticipating, mitigating, and preparing for humanitarian emergencies.

INFORM is a collaboration of the Inter-Agency Standing Committee Reference Group on Risk, Early Warning, and Preparedness with the European Commission. It is a multi-stakeholder forum for developing shared, quantitative analysis relevant to humanitarian crises and disasters. The Joint Research Center of the European Commission is the scientific lead. There are several operational dashboards, two of which – i.e., INFORM Risk and INFORM Climate Change – are pertinent to Mongolia's overall disaster risk.

- INFORM Risk is an open-source risk assessment for humanitarian crises and disasters. It can support decisions about prevention, preparedness, and response.
- INFORM Climate Change is an upgraded INFORM Risk Index that includes climate and socio-economic projections with results intended to inform policy choices across climate mitigation, climate adaptation, DRR, sustainable development, and humanitarian assistance.[363]

The **INFORM Risk** Index measures the risk of humanitarian crises and disasters in 191 countries. The model is based on the standard dimensions of risk: Hazards and Exposure, Vulnerability, and Coping Capacity, although the latter is expressed as "lack of coping capacity," which serves as a multiplier rather than mitigator (numerator versus denominator) in the standard risk calculation. The first dimension, "Hazards and Exposure," measures the natural and human hazards that pose the risk. The second (Vulnerability) and third (Lack of Coping Capacity) dimensions cover population factors that can mitigate against or exacerbate the risk. "Vulnerability" considers the strength of individuals and households relative to a crisis while "Lack of Coping Capacity" considers factors of institutional strength.[364]

INFORM gives each country a risk score of

1-10 (1 being the lowest risk and 10 the highest) for each of the dimensions, categories, and components of risk, as well as an overall risk score.[365] The higher the score the more at-risk a country is. In the 2025 INFORM Risk Index, Mongolia had an overall risk score of 2.9/10, which INFORM categorizes as the "Low" risk class and lands Mongolia a rank as the 126th most at-risk country in the Index. In the Hazards and Exposure dimension, Mongolia rated 2.0/10 or 141st of 191 countries. The country's Vulnerability dimension score was 3.3/10 or 111st of 191, and the Lack of Coping Capacity dimension score was 3.7/10 or 115th of 191. Physical exposure to River Flood (6.7/10) and Drought (6.6/10) were assessed as the most significant natural hazards. Socio-economic Development (4.4/10) was the most significant Vulnerability. Meanwhile, [lack of] Governance (6.3/10) was the highest score in the Lack of Coping Capacity dimension.[366] Figure 14 shows the INFORM dashboard for Mongolia.[367]

Based on 2022 baseline assessments and projections of climate change influences on components of risk, the INFORM Climate Change tool suggests that Mongolia's overall risk scores will improve (i.e., decrease to 2.5 from 2.9) between 2025 and 2050. This assessment is based on falling scores for Hazards & Exposure (1.5 in 2050 versus 2.0 in 2025) and Vulnerability (2.3 in 2050 versus 3.4 in 2025), although the country's total Lack of Coping Capacity score for 2050 is projected to be higher than 2025 (4.8 versus 3.7). The key projected shifts are large decreases in exposure to river floods and epidemics even as the country's exposure to drought rises from 6.6 in 2025 to 8.2 in 2050. The worsening coping capacity projections indicate that models expect significant institutional and infrastructural shortcomings across Mongolia by mid-century.

U.S. Government Disaster Management Engagement

The U.S. State Department's Bureau of Population, Refugees, and Migration (PRM) is the lead federal office for short-term foreign humanitarian response. Broadly, PRM coordinates humanitarian policy and diplomacy, provides life-sustaining assistance, and builds global partnerships to promote best practices in disaster relief. At the country level, these activities are executed by the agencies that form part of a U.S. Country Team, under the leadership of the U.S. Ambassador, who holds responsibility for making a Declaration of Humanitarian Need (DHN) if a major disaster triggers requests for international assistance. If a DHN is issued, PRM's Office of International Disaster Response (PRM / IDR), which replaced the U.S. Agency for International Development's Bureau for Humanitarian Assistance (USAID / BHA) in 2025, may mobilize Regional Disaster Advisors, deploy a Disaster Assistance Response Team (DART), stand up a Response Management Team, or move to deliver food or non-food relief. Additional support may be in the form of Urban Search and Rescue teams or experts to help manage a chemical, biological, radiological, nuclear, or explosive incident.

If civilian capacity is insufficient to meet life-saving need, PRM / IDR may request Department of Defense (DoD) support via an intra-U.S. Government process. This support will be for unique DoD capabilities for a set period of time. In order to build preparedness rather than simply react to large-scale events, the Country Team and other U.S. Government stakeholders undertake regular engagements for training, information sharing, and capacity strengthening. Among the key stakeholders in Mongolia are USINDOPACOM and its

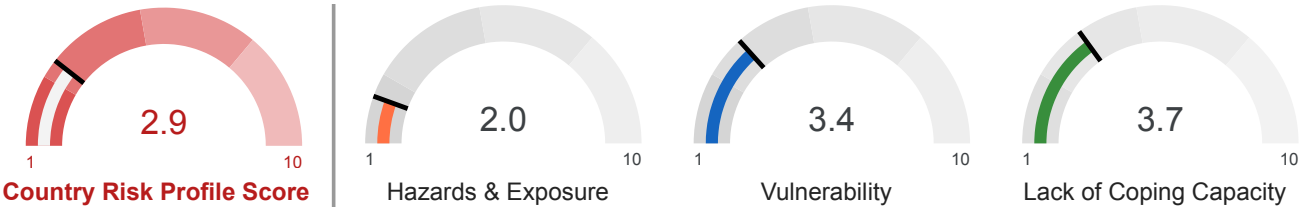


Figure 14: INFORM Risk Country Profile, Mongolia (2025)

component and subordinate commands and units as well as the Alaska National Guard (AKNG), who, under the State Partnership Program (SPP) of the U.S. National Guard Bureau, have cooperated with the MAF and other Mongolia stakeholders since 2003.

U.S. Country Team

Mongolia and the U.S. established diplomatic relations in 1987. The partnership between the two countries has progressed to a point where they are often referred to as strategic "Third Neighbors." Since the beginning of the relationship, both countries have increased economic, political, cultural, and educational ties. Cooperation has expanded in recent years following the 2019 declaration of a Strategic Partnership, which aims to enhance cooperation in building economic resilience, promoting democratic principles, and strengthening security cooperation.[368] Several U.S. Government agencies have supported various projects and programs in Mongolia throughout the years.

USAID and its BHA supported a range of DM projects and provided over US$377 million in total assistance to Mongolia over the course of 30 years.[369] USAID worked with the GoM and local organizations on development goals and supported various activities, including how to better prepare for and respond to natural disasters.[370]

USAID worked to strengthen Mongolia's resilience to natural disasters by supporting DRR programs that include training and support for the MRCS Incident Command System (ICS) with NEMA, and capacity building for livestock disease surveillance.[371] In 2021, USAID/BHA supported a project by the MRCS to enhance resilience against drought, dzud, and forest fires. In partnership with WV Mongolia, USAID/BHA strengthened the resilience of vulnerable communities and DM capabilities across five provinces and Ulaanbaatar. These initiatives included enhancing the capacities of decision makers to update DM guidelines, run disaster simulations, prepare for disasters, build response capacity, and support herders to increase resilience to animal diseases.

The U.S. Forest Service, supported by USAID/BHA, worked to strengthen the capacity of NEMA to respond to emergencies. Activities included integrating adaptable and relevant components of the U.S. National Incident Management System, such as the ICS platform, into Mongolia's DM system.[372]

U.S. Embassy in Mongolia

Denver Street #3, 11th Micro-District
Ulaanbaatar 14190, Mongolia
Tel: +976-7007-6001
Email: *pao@usembassy.mn*
X: @USEmbMongolia
Facebook: USEmbMongolia
Instagram: usembmongolia
Web: *https://mn.usembassy.gov/*

From 7 to 11 November 2022, the Embassy's Civil Military Support Element (CMSE) conducted an Advanced Medical First Responder course with the LEMA in Chinggis City, Khentii Province. The training was provided to improve the LEMA unit's ability to provide pre-hospital trauma care and life support and to improve interoperability between LEMA and local hospital staff. The course content included how to conduct assessments, vehicle extrication, triage, and running disaster scenarios.[373] The CMSE also partnered with NEMA and provincial LEMAs for the Khangai-21 exercise.[374] The CMSE, staffed by four U.S. Army Civil Affairs soldiers, cooperates with the GoM and civilian organizations to enhance disaster preparedness and provide assistance.[375] The U.S. Embassy and the U.S. Military's Civil Military Liaison Element donated 2,000 pulse oximeters to the MoH in response to a flu and flu-like illness outbreak in the country in January 2025. The MoH distributed the oximeters to public hospitals in and around Ulaanbaatar.[376]

Defense Cooperation: Bilateral defense cooperation started in 1991 and has become an important facet of the overall partnership between the two countries. The U.S. has been working with Mongolia to develop and strengthen regional security relationships and to enhance Mongolia's international

interoperability, including through various exercises and training. The relationship has served to strengthen Mongolia's defense and military institutional framework, and U.S. support has helped to contribute to the progression of the MAF's peacekeeping capability.

Major areas of defense cooperation between include military training, the modernization of the MAF, and increasing Mongolia's involvement in the region's multilateral security cooperation institutions and initiatives. Defense bilateral cooperation between Mongolia and the U.S. is conducted in accordance with "the Agreement on military visits and exchanges between the Government of Mongolia and Government of the USA," and other bilateral and multilateral arrangements. Mongolia's Ministry of Defense and the U.S. DoD established the Mongolia-U.S. Bilateral Consultative Council in 1999; it serves as an important venue for bilateral discussion on defense policy, regional security issues, and planning for engagements. The DoD has supported English language training programs and facilities to increase MAF, NEMA, and General Authority for the Border Protection interoperability and access to DoD programs.[377]

In the 2000s, Mongolia also supported the U.S. by sending troops to assist in Iraq and Afghanistan, where they fought side-by-side with U.S. forces. As a sign of continuing good defense relations between the two countries, in August 2023, Mongolian Prime Minister Luvsannamsrain Oyun-Erden visited the Pentagon for talks with then U.S. Secretary of Defense Lloyd J. Austin. It was the first visit of a Mongolian Prime Minister to the Pentagon.[378]

Separately, the U.S. Army Corps of Engineers (USACE) - Alaska District, is constructing a new NEMA EOC. The 3-story, 1,250-m² (13,454-ft²) building will be at the National Rescue Brigade's Ulaanbaatar location, where construction was scheduled to finish in early 2025. The project is one of a series in Mongolia funded by USINDOPACOM under the U.S. DoD's Overseas Humanitarian, Disaster, and Civic Aid (OHDACA) efforts.[379] Additionally, USACE – Alaska District is overseeing the design and construction of kindergartens in the country. Since 2019, it has partnered with USINDOPACOM and the U.S. Embassy on this project.[380] In September 2024, after two years, it helped finish construction of a school building with local contractors in remote Tosontsengel, 800 km (500 mi) west of Ulaanbaatar.[381]

State Partnership Program: The AKNG has partnered with Mongolia since 2003 as part of the National Guard Bureau SPP.[382] This whole-of-state collaboration, renewed in a 2025 Memorandum of Understanding (MoU), focuses on key areas including officer and non-commissioned officer development, operational medicine, emergency management, cybersecurity, and WPS initiatives.[383] Highlights of this partnership include AKNG participation in Mongolia's annual multinational peacekeeping exercise, Khaan Quest, and the semi-annual emergency management exercise, Gobi Wolf. Recently, collaboration has expanded into cybersecurity, with the AKNG assisting in the development of the Mongolian Cybersecurity Command.[384] Reciprocal exchanges, such as the Alaska Air National Guard hosting Mongolian Air Force and NEMA personnel to discuss air operations and maintenance or the Alaska Army National Guard hosting Mongolian Land Force Command (LFC) soldiers during Basic and Advanced Leader exchanges, further strengthen the bond.[385] The Alaska-Mongolia SPP fosters valuable engagements across military and civilian sectors and mutually advances bilateral objectives. Photo 7 shows personnel from MAF, NEMA, and the 168th Medical Group of the Alaska Air National Guard as they discuss Arctic survival equipment.[386]

Responses in the Past Five Years (2020-2025)

Dzud Responses: During the 2023-2024 winter season, a dzud resulted in widespread livestock deaths, especially in eastern and central Mongolia. It was the worst dzud event in over a decade. USAID/BHA provided almost US$200,000 to the MRCS and US$700,000 to



Photo 7: Mongolian and U.S. Personnel at Eielson Air Force Base, Alaska

WV Mongolia to respond to immediate needs of some 2,700 households, as well as for clearing roads and providing dignity kits and clothing. In response to severe dzud conditions in the previous (2022-2023) winter season, USAID/BHA provided US$100,000 to MRCS and US$900,000 to WV Mongolia for agriculture, cash, and protection assistance for some 3,660 households.[387]

COVID-19 Pandemic Aid: On 18 and 19 June 2022, USAID, in collaboration with the COVID-19 Vaccines Global Access initiative, delivered the first U.S.-facilitated shipments of approximately 302,400 doses of Pfizer's pediatric COVID-19 vaccines to Mongolia.[388] On 5 March 2021, the U.S. Embassy Deputy Chief of Mission and the CMSE handed over a donation of personal protective equipment and Rapid Antigen Test Kits to Mongolia's Deputy Minister of Health. The CMSE also donated equipment to NEMA and the General Authority for Special Inspection. The total donation of 26,000 plastic face shields, 75,000 N95 masks, and 3,150 boxes of latex gloves in various sizes, as well as 30,000 rapid test kits, was purchased with funds from the DoD's OHDACA program.[389] The U.S. provided more than US$8 million in aid to help Mongolia respond to the COVID-19 pandemic.[390]

DoD DM Engagements in the Past Five Years (2020-2025)

This section describes DM engagements between Mongolia and U.S. DoD commands and components in the last five years. A new multinational humanitarian exercise, Pacific Airlift Rally, was held in Ulaanbaatar in May 2025. Major recurring engagements include the annual Khaan Quest peacekeeping, humanitarian assistance, and disaster response exercise, and the biennial Exercise Gobi Wolf, a multinational civil-military training exercise.

Pacific Airlift Rally 25 – May 2025

The MAF-Air Force Component and U.S. Pacific Air Forces (PACAF) participated in Pacific Airlift Rally 25 (PAR25), a multinational disaster response exercise held from 5 to 9 May 2025 in Ulaanbaatar. The exercise brought together air forces and civilian disaster response agencies from 13 countries within the region to strengthen response coordination, interoperability, and regional cooperation. Aside from Mongolia and the U.S., participating countries included Bangladesh, Canada, Indonesia, Japan, Papua New Guinea, the Philippines, Malaysia, Singapore, Sri Lanka, Timor-Leste, and Tonga. The training included Subject Matter Expert Exchange (SMEE) lectures and Tabletop Exercises (TTX), including a scenario of an earthquake affecting northwestern Mongolia. The exercise focused on airfield operations, aerospace and expeditionary medicine, and logistical coordination. PAR25 also marked the 100th anniversary of the MAF.[391] Photo 8 depicts PAR25 airfield operation participants assessing the flightline from the Air Traffic Control (ATC) tower at Buyant-Ukhaa Airport in Ulaanbaatar, May 6, 2025. This part of the exercise enhanced airfield management capabilities, ensuring efficient aircraft movements, cargo handling, and prioritization of airlift missions during disaster response operations.[392]

Indo-Pacific Regional Military Gender Advisor Course – September 2024

In September 2024, representatives from Mongolia participated in USINDOPACOM's



Photo 8: PAR25 Participants at the Air Traffic Control Tower at Buyant-Ukhaa Airport

Office of Women, Peace and Security's second annual Indo-Pacific Regional Military Gender Advisor Course held in Honolulu, Hawai'i. The course was part of a 5-year security cooperation initiative to strengthen interoperability across a regional network of military gender advisors. Mongolian participants joined a team of advisors from Australia, Bangladesh, Canada, Fiji, Japan, New Zealand, Papua New Guinea, the Philippines, and the U.S. to provide a 10-day training session to 29 students from 16 Indo-Pacific nations. Participants were from Australia, Bangladesh, Canada, Fiji, India, Indonesia, Japan, Mongolia, Nepal, New Zealand, Papua New Guinea, the Philippines, Republic of Korea, Singapore, Tonga, and Thailand. Participants learned key skills and practices to determine and respond to the needs of women, girls, and all other populations during military operations. The course aimed to promote considering the entire population in mission planning and execution to improve preparedness ahead of crises and disaster response.[393]

Khaan Quest

Khaan Quest is considered a flagship event of Mongolia-U.S. defense cooperation. The exercise has been conducted since 2006 as one of the premier field training peacekeeping events in the region.[394]

July 2024

From 27 July to 8 August 2024, the MAF hosted participants from 20 countries at Khaan Quest 2024 (KQ24), which was held at the Five Hills Training Facility near Ulaanbaatar. The exercise involved command post exercise (CPX) and field training exercises (FTX) focused on reinforcing UN standards. The scenario-based training concentrated on peacekeeping operations and humanitarian assistance and disaster response involving humanitarian organizations and host nation partners.[395] Over 900 participants represented Australia, Canada, Egypt, Germany, Hungary, Indonesia, Japan, Nepal, Pakistan, the Philippines, PRC, Qatar, Republic of Korea, Saudi Arabia, Singapore, Türkiye, the UK, and the U.S.[396]

June 2023

The MAF and soldiers from U.S. Army Pacific joined other soldiers from across the region in Khaan Quest 23 (KQ23), from 19 June 2023. Twenty-six countries participated in KQ23, which was held at the Five Hills Training Facility outside Ulaanbaatar. The exercise focused on a CPX and included a Critical Enabler's Capability Enhancement and FTX.[397]

June 2022

The MAF hosted Khaan Quest 2022 (KQ22), held from 6 to 17 June 2022, at the Five Hills Training Area. KQ22 marked the 20th anniversary of Mongolia's first peacekeeping contribution. It included a combined brigade-level CPX and battalion-level FTX. There were over 1,050 exercise participants, including 94 U.S. personnel.[398]

Military-Civilian Health Security Summit – June 2024

Representatives from Mongolia participated in the Military-Civilian Health Security Summit (MCHSS) in Sydney, Australia, 16-17 June 2024. The MCHSS was co-hosted by the Australian Defence Force and USINDOPACOM. Around 120 participants from 23 Indo-Pacific states attended, bringing together military and civilian representatives, international organizations, NGOs, and academics. The MCHSS, established in 2018, is a multinational effort to improve coordination and collaboration to better prevent, detect, and respond to health security threats.[399]

Tempest Express 39 – May 2024

From 14 to 22 May 2024, Mongolia hosted the Tempest Express (TE) 39 multinational workshop in Ulaanbaatar. The workshop involved the MAF and personnel from civilian humanitarian agencies who worked with military planners from more than 17 other countries, including the U.S. The TE series is designed to promote regional peace and security and enhance multinational capacity in the Indo-Pacific region. The workshop included engagement with academic experts related to multinational humanitarian assistance and disaster response operations, peacekeeping operations, pandemic response operations, maritime security operations, and noncombatant evacuation operations planning, followed by scenario-based planning exercises. Coordinated by USINDOPACOM's Multinational Planning Augmentation Team (MPAT), TE has helped international military planners from nations in or with interests in the Indo-Pacific region develop procedures for multinational capabilities.[400]

Exercise Gobi Wolf

The Gobi Wolf series started in Ulaanbaatar in 2009 with a scenario of a hazardous material spill.[401]

May 2024

Mongolia hosted Exercise Gobi Wolf 2024, a biennial multinational civil-military training exercise, from 7 to 10 May 2024 in Dornod Province's capital, Choibalsan. The 4-day exercise, coordinated by NEMA and U.S. Army Pacific is part of the Pacific Resilience Disaster Response Exercise and Exchange (DREE) program, which focuses on interagency coordination and foreign humanitarian assistance and disaster response. The 2024 exercise included an Expert Academic Discussion, TTX, and FTX, on various aspects of disaster response. Topics ranged from earthquake response and firefighting to hazardous material management, field hospitals, and search and rescue, which included medical triage and swift water rescue. Over 350 people representing 30 organizations, including military, law enforcement, ministries, government agencies, disaster management organizations, and international humanitarian organizations, participated. Mongolia was joined by participants from Australia, Bangladesh, Canada, France, India, Maldives, Nepal, the Philippines, Republic of Korea, Sri Lanka, Thailand, Vietnam, and the U.S.[402] Photo 9 depicts MAF and U.S. military personnel demonstrating high-angle rescue techniques at the exercise.[403]



Photo 9: Rescue Simulation at Exercise Gobi Wolf 2024

September 2022

Exercise Gobi Wolf 2022 was held in Bayankhongor from 5 to 10 September 2022 and focused on a simulated earthquake scenario 650 km (400 mi) southwest of Ulaanbaatar. It also comprised an expert academic discussion,

TTX, and FTX, designed to develop and test interagency coordination during disaster response. Academic discussions analyzing disaster situations fed into the TTX. The week-long FTX included hazardous materials response, search and rescue, and mass medical care. Around 300 participants from Bangladesh, Mongolia, Nepal, Sri Lanka, Thailand, the UK, the U.S., and Vietnam attended. U.S. participants came from active-duty and reserve components of U.S. Army Pacific and PACAF, Alaska and Washington National Guards, U.S. Forest Service, Alaska's City of Palmer Fire & Rescue, and the Defense Security Cooperation Agency's Institute for Security Governance.[404]

Airman-to-Airman Talks

These talks are intended to facilitate discussions on sharing best practices and to build stronger relationships through planning and collaboration.

May 2023

PACAF hosted MAF Air Force Command personnel at PACAF headquarters on Joint Base Pearl Harbor Hickam from 22 to 26 May 2023. The meeting was part of an exchange known as Airman-to-Airman Talks (A2AT). A2AT are held biennially, and the 2023 A2AT were the third iteration of the event. Working groups on operations, logistics, medical, and other topics were held throughout the week.[405]

November 2021

The AKNG participated in the second biennial A2AT with the MAF to plan for future training and SMEEs. U.S. and Mongolian military members participated in four working group topics for the 2021 A2AT; they included exercises and engagements, logistics, professionalization and education, and medical. During the working groups, the MAF and U.S. Air Force representatives developed a roadmap for collaboration in areas such as activities and exercises, security assistance, and high-level visits. The logistics group discussed best practices for airfield operations, security forces, and search and rescue.[406]

Pacific Angel

Pacific Angel is an exercise led by PACAF and focused on disaster response and humanitarian assistance activities and mechanisms. It is conducted in locations throughout the Indo-Pacific region.

August 2023

From 21 to 26 August 2023, military personnel from Australia, Mongolia, Nepal, Thailand, and the U.S. participated in Pacific Angel (PAC ANGEL) 23-2 in Tsetserleg, Mongolia. The exercise was conducted to promote military, civilian, and NGO cooperation and improve interoperability in providing humanitarian assistance and disaster response. The exercise included medical health service outreaches, engineering civic action programs, and SMEEs. Projects included refurbishing a senior citizen center in Jargalant, and a hospital in Tsenkher.[407] USINDOPACOM sponsors PAC ANGEL to promote interoperability among military, civilian, and NGOs stakeholders, and to demonstrate DoD support capabilities for humanitarian assistance and disaster response events. Operations include medical, dental, emergency response, casualty evacuation, infectious disease control, engineering programs, airfield operations and repairs, and SMEEs.[408]

August 2022

From 15 to 19 August 2022, participants from Mongolia attended the week-long Exercise PAC ANGEL 2022-2 at Subang Air Base, Malaysia. Observers from Mongolia joined representatives from Indonesia, the Philippines, and the U.S. along with members from the Royal Malaysian Air Force, Royal Australian Air Force, PACAF, and NGOs. Training flights were conducted on Malaysia and U.S. aircraft, and there were additional SMEEs. The exercise culminated with an aerial freefall event, search and rescue, and simulated casualty evacuation aboard a C-130J Super Hercules from the PACAF's 374th Airlift Wing.[409]

U.S. Army Training – October 2022

U.S. Army advisors partnered with the Mongolian LFC beginning in October 2022 for a multi-month rotation to strengthen peacekeeping and non-commissioned officer development. U.S. Army advisors from the 2nd Battalion, 5th Security Force Assistance Brigade worked with the LFC during the rotation. The Brigade has partnered with the LFC since early 2021. The advisors were from Company Advisor Team 5220 and Maneuver Advisor Team 5223.[410]

Water Rescue Training – June 2022

From 20 to 24 June 2022, a U.S. Army Civil Affairs team and personnel from the Khuvsgul Province LEMA participated in a medical engagement and exchange focused on water rescue techniques and water-related injuries in Murun. The province is home to one of the largest and most-visited lakes in the country and the Civil Affairs team developed a training curriculum that focused on the most frequent medical emergencies that occurred within the province. At the end of the exercise, the team donated medical equipment to the LEMA team.[411]

Khangai-21 – September 2021

From 14 to 23 September 2021, the CMSE of the U.S. Embassy in Mongolia partnered with NEMA to organize the Khangai-21 Disaster Response Exercise in Arkhangai Province. Working together with LEMAs from Arkhangai, Bayankhongor, Bulgan, Khuvsgul, Uvurkhangai, and Zavkhan Provinces, medical and rescue personnel from the U.S. Air Force led training exercises in confined spaces and high-angle rescue, along with support training in emergency medicine, crisis communications, and emergency management. In addition to the more than 180 Mongolian participants, the Defense Attachés of Japan, the Republic of Korea, and the Republic of Türkiye attended as observers. Special focus was given to earthquake response to help Mongolian rescue personnel better prepare to provide assistance and relief to the people of Mongolia in the event of such a disaster. Training for rescue personnel covered safe evacuation of disaster-affected people, for medical personnel covered triage and treatment, and for EOC officials covered effective management, resourcing, crisis communications, and working with international NGOs.[412]

Additional Resources

This appendix provides additional references, with links, to enable readers to find relevant and contextual information.

International and U.S. Government General Resources
United Nations Mongolia https://mongolia.un.org/en/sdgs *This website reports on how the UN is supporting the Sustainable Development Goals in Mongolia and progress towards achieving those goals.*
U.S. Embassy in Mongolia https://mn.usembassy.gov/ *Official website of the U.S. Embassy in Mongolia.*
Mongolia U.S. CIA World Factbook https://www.cia.gov/the-world-factbook/countries/mongolia/ *Overview of the history, people, government, economy, environment, infrastructure, military, and transnational issues.*
Mongolia Common Country Analysis 2024 United Nations Country Team https://mongolia.un.org/en/293766-mongolia-common-country-analysis-update-2024 *In-depth examination of governance, economic stability, society, sustainability, and humanitarian issues.*
Sendai Framework for Disaster Risk Reduction 2015-2030 United Nations Office for Disaster Risk Reduction https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030 *Outlines targets and priorities for action to reduce disaster risk.*

Mongolia: Disaster Risk/Management
Mongolia Country Report 2022 Ariuntungalag Batjargal. Asian Disaster Reduction Center (ADRC) Visiting Researcher Program, FY2022. https://www.adrc.asia/countryreport/MNG/2022/Mongolia_CR_FY2022.pdf *Mongolia country report focusing on disaster risk management written by a visiting researcher to the ADRC.*
Climate Risk Country Profile – Mongolia Asian Development Bank, World Bank. 2021. https://www.adb.org/sites/default/files/publication/709901/climate-risk-country-profile-mongolia.pdf *Provides data on climate risk, disaster risk reduction, and adaptation actions and policies for practitioners to integrate climate resilience in development planning and policy making.*
Disaster Risk Reduction in Mongolia: Status Report 2019 Asian Disaster Preparedness Center and United Nations Office for Disaster Risk Reduction – Regional Office for Asia and Pacific https://www.undrr.org/publication/disaster-risk-reduction-mongolia-status-report-2019 *State of DRR in Mongolia under the four priorities of the Sendai Framework for Disaster Risk Reduction 2015-2030; highlights progress and challenges and makes recommendations.*
Mongolia Country Climate and Development Report World Bank Group. 2024 https://reliefweb.int/report/mongolia/mongolia-country-climate-and-development-report-2024 *This report details reforms on Mongolia's climate and development strategies and recommends short- and medium-term policy actions.*
World Bank. Assessing the Adaptability of Social Protection and Enhancing Herder Resilience Against Climate Shocks in Mongolia World Bank Group. May 2025 https://documents1.worldbank.org/curated/en/099052125093016118/pdf/P174453-41f7d063-50f0-413d-b3a7-527b20e6a658.pdf *This report presents the results of research and efforts to improve Mongolia's social protection system's ability to improve herder resilience to weather shocks.*

Health, Refugees, Law

Mongolia Country Cooperation Strategy 2022 – 2026
WHO.
World Health Organization and Mongolia's cooperation strategy to meet health goals report.

2021 Global Health Security Index Country Profile for Mongolia
https://ghsindex.org/country/mongolia/
The Global Health Security (GHS) Index is an assessment and benchmarking of health security and related capabilities across 195 countries, including Mongolia. The index aims to build global capacity to prevent, detect, and respond to epidemics and pandemics.

Regional/International: Coordination, Historical Overview

Asia-Pacific Regional Guidelines for the Use of Foreign Military Assets in Natural Disaster Response Operations ("APC-MADRO Guidelines")
The Asia-Pacific Conferences on Military Assistance to Disaster Relief Operations (APC-MADRO) & OCHA, 2014
https://www.unocha.org/publications/report/world/asia-pacific-regional-guidelines-use-foreign-military-assets-natural-disaster-response
Reference guide for states planning and executing foreign military support for regional disaster response.

Multinational Force Standing Operating Procedures (MNF SOP) – Annex C: Humanitarian Assistance/ Disaster Relief
Multinational Planning Augmentation Team (MPAT), U.S. Indo-Pacific Command
https://community.apan.org/wg/mnfsop/m/documents/307456
Annex on international humanitarian assistance; part of broad standing procedures for regional multinational force operations other than war.

USINDOPACOM Foreign Disaster Response in the Indo-Asia-Pacific April 1991 – January 2024
CFE-DM, U.S. Pacific Command.
https://www.cfe-dmha.org/Publications/New-Releases
Contemporary historical synopsis of foreign disasters the U.S. DoD responded to in the Indo-Pacific.

U.S. DoD Training

Humanitarian Assistance Response Training – Disasters (HART-D) Course.
CFE-DM, U.S. Pacific Command.
https://www.cfe-dmha.org/hart-d
Target Audience: O3-O6, E6-E9, and DoD civilians who may plan for or execute a Foreign Disaster Relief mission or participate in disaster response activities in exercises or security cooperation engagements.

Acronyms and Abbreviations

°C / °F	Degrees Celsius / Fahrenheit
$	U.S. Dollar
A2AT	Airman-to-Airman Talks
ADB	Asian Development Bank
ADRA	Adventist Development and Relief Agency
AKNG	Alaska National Guard
BHA	Bureau for Humanitarian Assistance (of USAID)
CADRI	Capacity for Disaster Reduction Initiative
CAS	Chinese Academy of Sciences
CCS	Country Cooperation Strategy (of the WHO)
CFE-DM	Center for Excellence in Disaster Management and Humanitarian Assistance
CHF	Swiss Franc
CIDCA	China International Development Cooperation Agency
cm	centimeter(s)
CMSE	Civil Military Support Element (of the U.S. Embassy)
COVID-19	Coronavirus Disease 2019
CPX	Command Post Exercise
CRED	Centre for Research on Epidemiology of Disasters
CSO	civil society organization
DART	Disaster Assistance Response Team
DHN	Declaration of Humanitarian Need
DM	disaster management
DoD	Department of Defense (U.S.)
DREE	Disaster Response Exercise and Exchange
DRM	disaster risk management
DRR	disaster risk reduction
EM-DAT	International disaster database (by the Centre for Research on Epidemiology of Disasters)
EOC	emergency operations center
ERC	Energy Regulatory Commission
ETC	Emergency Telecommunications Cluster
EWS	early warning system
FAO	Food and Agriculture Organization of the United Nations
ft / ft^2	foot (feet) / square foot (feet)
FTX	field training exercise
GDP	Gross Domestic Product
GIS	geographical information system
GNI	Gross National Income
GoM	Government of Mongolia

GW	Gigawatts
ha	hectare(s)
HCT	Humanitarian Country Team
HFMD	Hand, Foot, and Mouth Disease
HIV	human immunodeficiency virus
ICRC	International Committee of the Red Cross
ICS	Incident Command System
ICT	Information and Communications Technology
IDR	Office of International Disaster Response (U.S. State Department/PRM)
IFRC	International Federation of Red Cross and Red Crescent Societies
IHL	International Humanitarian Law
in	inch(es)
IOM	International Organization for Migration (of the UN)
IRIMHE	Information and Research Institute of Meteorology, Hydrology, and Environment
JICA	Japan International Cooperation Agency
JPY	Japanese Yen
km / km^2	kilometer(s) / square kilometer(s)
KQ	Khaan Quest (exercise)
LEC	Local Emergency Commission
LEMA	Local Emergency Management Authority
LCDRR	Local Councils for Disaster Risk Reduction
LFC	Land Forces Command (Mongolian Armed Forces)
m / m^2	meter(s) / square meter(s)
MAF	Mongolian Armed Forces
MCHSS	Military-Civilian Health Security Summit
MCR2030	Making Cities Resilient 2030
MHEWS	multi-hazard early warning system
mi / mi^2	mile(s)
MoH	Ministry of Health
MoU	Memorandum of Understanding
mm	millimeter(s)
MNT	Mongolian Tugrik
MPAT	Multinational Planning Augmentation Team (USINDOPACOM)
MRCS	Mongolian Red Cross Society
NAMEM	National Agency for Meteorology and Environmental Monitoring
NCDRR	National Council for Disaster Risk Reduction
NCZD	National Center for Zoonotic Diseases
NEMA	National Emergency Management Agency
NGO	non-governmental organization

NRSC	National Remote Sensing Centre
NSO	National Statistics Office
OCHA	Office for the Coordination of Humanitarian Affairs (of the UN)
OHDACA	Overseas Humanitarian, Disaster Assistance, and Civic Aid (U.S. DoD)
PACAF	U.S. Pacific Air Forces
PAC ANGEL	Pacific Angel (exercise)
PAR	Pacific Airlift Rally (exercise)
PHEOC	Public Health Emergency Operations Center
PM	particulate matter
PRC	People's Republic of China
PRM	Bureau of Population, Refugees, and Migration (U.S. State Department)
RADI	Institute of Remote Sensing and Digital Earth (now Aerospace Information Research Institute, Chinese Academy of Sciences)
RESAP	Regional Space Applications Programme for Sustainable Development (of UNESCAP)
SAM	severe acute malnutrition
SC	Save the Children
SDG	Sustainable Development Goal
SEC	State Emergency Committee
SMEE	subject matter expert exchange
SPP	State Partnership Program (U.S. National Guard)
TE	Tempest Express (exercise)
TTX	tabletop exercise
UB Dialogue	Ulaanbaatar Dialogue on Northeast Asian Security
U.S.	United States
UN	United Nations
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFPA	United Nations Population Fund
UNICEF	United Nations Children’s Fund
UN RCO	United Nations Resident Coordinator's Office
USACE	U.S. Army Corps of Engineers
USAID	U.S. Agency for International Development
USINDOPACOM	U.S. Indo-Pacific Command
WASH	Water, Sanitation, and Hygiene
WFP	World Food Programme (of the UN)
WHO	World Health Organization (of the UN)
WPS	Women, Peace and Security
WV	World Vision

Endnotes

1 The Climate Reality Project. How the Climate Crisis is Impacting Mongolia, 25 July 2025. https://www.climatereal-ityproject.org/blog/how-climate-crisis-impacting-mongolia

2 Schulder-Battis, Katie. 'It's Where Life Happens': Migration and Settlement in Mongolia's Capital City, Pulitzer Center, 15 November 2023. https://pulitzercenter.org/stories/its-where-life-happens-migration-and-settlement-mongolias-capital-city

3 Embassy of Mongolia to the United States of America. Geography and Climate. https://mongolianembassy.us/about-mongolia/geography-and-climate/; Country Report: Mongolia. ADRC Visiting Researcher: Ariuntungalag Batjargal. ADRC. 2022, https://www.adrc.asia/countryreport/MNG/2022/Mongolia_CR_FY2022.pdf

4 Blue Green Atlas. Free Relief Map of Mongolia, Blue Green Atlas, licensed under CC BY 4.0, accessed 8 August 2025. https://www.bluegreenatlas.com/maps/relief_map_of_mongolia.html

5 Brittanica. Ulaanbaatar. https://kids.britannica.com/students/article/Ulaanbaatar/277487

6 Country Report: Mongolia. ADRC Visiting Researcher: Ariuntungalag Batjargal. ADRC. 2022.

https://www.adrc.asia/countryreport/MNG/2022/Mongolia_CR_FY2022.pdf; Asian Development Bank. Women's Resilience in Mongolia: How Laws and Policies Promote Gender Equality in Climate Change and Disaster Risk Management. June 2022. https://www.adb.org/sites/default/files/publication/801406/women-resilience-mongolia.pdf

7 Brittanica. Mongolia. https://www.britannica.com/place/Mongolia

8 National Geographic. Steppe. https://education.nationalgeographic.org/resource/steppe/

9 Country Report: Mongolia. ADRC Visiting Researcher: Ariuntungalag Batjargal. ADRC. 2022.

https://www.adrc.asia/countryreport/MNG/2022/Mongolia_CR_FY2022.pdf

10 Photo by Sarah Lachise. Desert sand during daytime. Unsplash. 3 August 2016. https://unsplash.com/photos/desert-sand-during-daytime-SIX-q58-UMo

11 World Atlas. The Coldest Capital Cities in the World. https://www.worldatlas.com/articles/the-coldest-capital-cities-in-the-world.html

12 Country Report: Mongolia. ADRC Visiting Researcher: Ariuntungalag Batjargal. ADRC. 2022.

https://www.adrc.asia/countryreport/MNG/2022/Mongolia_CR_FY2022.pdf; NEMA. Mongolia's National Midterm Review of the Sendai Framework for Disaster Risk Reduction Report. 2022. https://sendaiframework-mtr.undrr.org/media/87207/download?startDownload=20250617; World Bank Group and Asian Development Bank. Climate Risk Country Profile: Mongolia. 2021. https://www.adb.org/sites/default/files/publication/709901/climate-risk-country-profile-mongolia.pdf

13 Embassy of Mongolia to the United States of America. Geography and Climate. https://mongolianembassy.us/about-mongolia/geography-and-climate/; World Bank Group. Mongolia Country Climate and Development Report (2024). https://reliefweb.int/report/mongolia/mongolia-country-climate-and-development-report-2024; World Bank Group and Asian Development Bank. Climate Risk Country Profile: Mongolia. 2021. https://www.adb.org/sites/default/files/publication/709901/climate-risk-country-profile-mongolia.pdf

14 Hincks, Joseph. Life in the Most Polluted Capital in the World. Time Magazine. 23 March 2018. https://time.com/5202624/ulan-bator-mongolia-most-polluted-capital/

15 UNDP. Investment Case Study for Air Pollution Reduction in Mongolia. United Nations Development Program; 2024. License: CC BY-NC-SA 3.0 IGO. https://www.undp.org/sites/g/files/zskgke326/files/2024-09/investment_case_of_air_pollution_reduction_in_mongolia_full_report_en.pdf

16 WHO. World Health Organization issues recommendations to tackle health impacts of air pollution in Mongolia. 28 February 2018. https://www.who.int/mongolia/news/detail/28-02-2018-world-health-organization-issues-recommendations-to-tackle-health-impacts-of-air-pollution-in-mongolia

17 World Bank. Assessing the Adaptability of Social Protection and Enhancing Herder Resilience Against Climate Shocks in Mongolia. May 2025. https://openknowledge.worldbank.org/entities/publication/d3b3fb07-f37c-4559-8192-8a7072f4d1c3

18 UNDP. For a thriving Mongolia: The fight against Biodiversity loss, climate change, and desertification. 20 October 2024. https://www.undp.org/mongolia/stories/thriving-mongolia-fight-against-biodiversity-loss-climate-change-and-desertification

19 ADB. 2025 Basic Statistics. https://www.adb.org/sites/default/files/publication/1047776/basic-statistics-2025.pdf

20 Country Report: Mongolia. ADRC Visiting Researcher: Ariuntungalag Batjargal. ADRC. 2022.

https://www.adrc.asia/countryreport/MNG/2022/Mongolia_CR_FY2022.pdf

21 ADB. 2025 Basic Statistics. https://www.adb.org/sites/default/files/publication/1047776/basic-statistics-2025.pdf

22 World Factbook. Mongolia. https://www.cia.gov/the-world-factbook/countries/mongolia/#people-and-society

23 The Government of Mongolia Ministry of Labour and Social Protection. Mongolia Comprehensive National-Level Report on the Implementation of the Beijing Declaration and Platform of Action (2019 – 2024). August 2024. https://www.unwomen.org/sites/default/files/2024-09/b30_report_mongolia_en.pdf

24 World Factbook. Mongolia. https://www.cia.gov/the-world-factbook/countries/mongolia/#people-and-society

25 Country Report: Mongolia. ADRC Visiting Researcher: Ariuntungalag Batjargal. ADRC. 2022.

https://www.adrc.asia/countryreport/MNG/2022/Mongolia_CR_FY2022.pdf

26 World Factbook. Mongolia. https://www.cia.gov/the-world-factbook/countries/mongolia/#people-and-society

27 Country Report: Mongolia. ADRC Visiting Researcher: Ariuntungalag Batjargal. ADRC. 2022.

https://www.adrc.asia/countryreport/MNG/2022/Mongolia_CR_FY2022.pdf

28 World Factbook. Mongolia. https://www.cia.gov/the-world-factbook/countries/mongolia/#people-and-society

29 UNICEF Mongolia. Acute malnutrition: Early diagnosis, thorough treatment, and family support are key. 11 November 2024. https://www.unicef.org/mongolia/stories/acute-malnutrition-early-diagnosis-thorough-treatment-and-family-support-are-key

30 World Vision. Mongolia's most vulnerable children. https://www.wvi.org/sites/default/files/mvc_website.pdf

31 The government of Mongolia Ministry of Labour and Social Protection. Mongolia Comprehensive National-Level Report on the Implementation of the Beijing Declaration and Platform of Action (2019 – 2024). August 2024. https://www.unwomen.org/sites/default/files/2024-09/b30_report_mongolia_en.pdf

32 Central Asia Regional Economic Cooperation (CAREC) Program. Country Risk Profile: Mongolia. March 2022. https://www.carecprogram.org/uploads/CAREC-Risk-Profiles_Mongolia.pdf

33 IDMC. Country Profile: Mongolia. https://www.internal-displacement.org/countries/mongolia/

34 Asian Development Bank. Women's resilience in Mongolia. How laws and policies promote gender equality in climate change and disaster risk management. June 2022. https://www.adb.org/sites/default/files/publication/801406/women-resilience-mongolia.pdf

35 Central Asia Regional Economic Cooperation (CAREC) Program. Country Risk Profile: Mongolia. March 2022. https://www.carecprogram.org/uploads/CAREC-Risk-Profiles_Mongolia.pdf

36 World Bank. Assessing the Adaptability of Social Protection and Enhancing Herder Resilience Against Climate Shocks in Mongolia. May 2025. https://documents1.worldbank.org/curated/en/099052125093016118/pdf/P174453-41f7d063-50f0-413d-b3a7-527b20e6a658.pdf

37 The Asia Foundation. The Last Nomads. 27 September 2023. https://asiafoundation.org/the-last-nomads/; Brown, Lynn. The Changing Face of Mongolia. BBC. 2 November 2024. https://www.bbc.com/travel/article/20241101-the-changing-face-of-mongolia; UNHCR, Protection Cluster. Mongolia: Forecast-based financing to avoid disaster displacement. 23 November 2020. https://reliefweb.int/report/mongolia/mongolia-forecast-based-financing-avoid-disaster-displacement

38 The government of Mongolia Ministry of Labour and Social Protection. Mongolia Comprehensive National-Level Report on the Implementation of the Beijing Declaration and Platform of Action (2019 – 2024). August 2024. https://www.unwomen.org/sites/default/files/2024-09/b30_report_mongolia_en.pdf

39 Photo by: Fadhil Abhimantra. Woman milking a yak with onlookers in a field. 17 March 2025. Unsplash. https://unsplash.com/photos/woman-milking-a-yak-with-onlookers-in-a-field-kmom6acmE84

40 Calderwood, Kathleeen and Matteeussen, West. Mongolia's nomadic herders have lived off the land for centuries but are now enduring the worst of climate change. ABC News. 9 Dec 2023. https://www.abc.net.au/news/2023-12-10/at-the-mercy-of-mongolia-s-changing-climate/103053708

41 Central Asia Regional Economic Cooperation (CAREC) Program. Country Risk Profile: Mongolia. March 2022. https://www.carecprogram.org/uploads/CAREC-Risk-Profiles_Mongolia.pdf

42 World Bank. Assessing the Adaptability of Social Protection and Enhancing Herder Resilience Against Climate Shocks in Mongolia. May 2025. https://documents1.worldbank.org/curated/en/099052125093016118/pdf/P174453-41f7d063-50f0-413d-b3a7-527b20e6a658.pdf

43 World Bank Group and Asian Development Bank. Climate Risk Country Profile: Mongolia. 2021. https://www.adb.org/sites/default/files/publication/709901/climate-risk-country-profile-mongolia.pdf

44 UNDP. Investment Case Study for Air Pollution Reduction in Mongolia. United Nations Development Program; 2024. License: CC BY-NC-SA 3.0 IGO. https://www.undp.org/sites/g/files/zskgke326/files/2024-09/investment_case_of_air_pollution_reduction_in_mongolia_full_report_en.pdf

45 UNICEF. Mongolia. The challenges. https://www.unicef.org/mongolia/environment-air-pollution

46 UNDP. Investment Case Study for Air Pollution Reduction in Mongolia. United Nations Development Program; 2024. License: CC BY-NC-SA 3.0 IGO. https://www.undp.org/sites/g/files/zskgke326/files/2024-09/investment_case_of_air_pollution_reduction_in_mongolia_full_report_en.pdf

47 Swiss Agency for Development and Cooperation (SDC). Breathing new life into Mongolia: Addressing air pollution challenges. 26 February 2024. https://www.deza.eda.admin.ch/en/air-to-breathe

48 Photo by Bree Evans, Unsplash. A View of a city with mountains in the background: Ulaanbaatar, Mongolia Capital City at Sunset, 31 March 2024. https://unsplash.com/photos/a-view-of-a-city-with-mountains-in-the-background-3_II4AdO19Q

49 World Bank. Assessing the Adaptability of Social Protection and Enhancing Herder Resilience Against Climate Shocks in Mongolia. May 2025. https://documents1.worldbank.org/curated/en/099052125093016118/pdf/P174453-41f7d063-50f0-413d-b3a7-527b20e6a658.pdf; Asian Development Bank. Poverty Data: Mongolia. https://www.adb.org/where-we-work/mongolia/poverty

50 Central Asia Regional Economic Cooperation (CAREC) Program. Country Risk Profile: Mongolia. March 2022. https://www.carecprogram.org/uploads/CAREC-Risk-Profiles_Mongolia.pdf

51 Central Asia Regional Economic Cooperation (CAREC) Program. Country Risk Profile: Mongolia. March 2022. https://www.carecprogram.org/uploads/CAREC-Risk-Profiles_Mongolia.pdf

52 World Bank. Assessing the Adaptability of Social Protection and Enhancing Herder Resilience Against Climate Shocks in Mongolia. May 2025. https://documents1.worldbank.org/curated/en/099052125093016118/pdf/P174453-41f7d063-50f0-413d-b3a7-527b20e6a658.pdf

53 Central Asia Regional Economic Cooperation (CAREC) Program. Country Risk Profile: Mongolia. March 2022. https://www.carecprogram.org/uploads/CAREC-Risk-Profiles_Mongolia.pdf

54 UNHCR, Protection Cluster. Mongolia: Forecast-based financing to avoid disaster displacement. 23 November 2020. https://reliefweb.int/report/mongolia/mongolia-forecast-based-financing-avoid-disaster-displacement

55 NEMA. Mongolia's National Midterm Review of the

Sendai Framework for Disaster Risk Reduction Report. 2022. https://sendaiframework-mtr.undrr.org/media/87207/download?startDownload=20250617; Asian Disaster Preparedness Center and United Nations Office for Disaster Risk Reduction – Regional Office for Asia and Pacific. Disaster risk reduction in Mongolia: Status report 2019. https://www.undrr.org/publication/disaster-risk-reduction-mongolia-status-report-2019

56 Brittanica. Mongolia. Local Government. https://www.britannica.com/place/Mongolia/Government-and-society

57 OCHA. Mongolia: National Reference Map (as of Aug 2012). 29 August 2012. https://reliefweb.int/map/mongolia/mongolia-national-reference-map-aug-2012

58 Brittanica. Mongolia. Local Government. https://www.britannica.com/place/Mongolia/Government-and-society

59 Country Report: Mongolia. ADRC Visiting Researcher: Ariuntungalag Batjargal. ADRC. 2022.

https://www.adrc.asia/countryreport/MNG/2022/Mongolia_CR_FY2022.pdf

60 Brittanica. Mongolia. Local Government. https://www.britannica.com/place/Mongolia/Government-and-society

61 Country Report: Mongolia. ADRC Visiting Researcher: Ariuntungalag Batjargal. ADRC. 2022.

https://www.adrc.asia/countryreport/MNG/2022/Mongolia_CR_FY2022.pdf

62 World Bank. The World Bank in Mongolia – Overview. April 2025. https://www.worldbank.org/en/country/mongolia/overview

63 World Bank. World Bank Country and Lending Groups. 2025. https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups

64 World Bank. Data – GNI per capital, Atlas method (current US$). 2023. https://data.worldbank.org/indicator/NY.GNP.PCAP.CD

65 World Bank. The World Bank in Mongolia – Overview. April 2025. https://www.worldbank.org/en/country/mongolia/overview

66 Asian Development Bank. Mongolia's Economy Remains Strong with Growth Projected at 6.6% in 2025 — ADB. 9 April 2025. https://www.adb.org/news/mongolia-economy-remains-strong-growth-projected-6-6-2025-adb

67 Centre for Policy Research Mongolia. CPR evaluated the major impacts of the 2023-2024 dzud on the livestock sector of Mongolia. 6 December 2024. https://www.cpr.mn/?p=910&lang=en

68 Asian Development Bank. Asian Development Outlook – Trade Uncertainty Challenges Resilience in Asia and the Pacific. April 2025. https://www.adb.org/sites/default/files/publication/1044336/asian-development-outlook-april-2025.pdf

69 Chuluunbat, Narantuya. The hidden cost of Mongolia's mining boom. East Asia Forum. 7 February 2025. https://eastasiaforum.org/2025/02/07/the-hidden-cost-of-mongolias-mining-boom/

70 Federal Ministry for Economic Cooperation and Development (Germany). Economic and Social Situation – Strong focus on natural resources. 5 February 2025. https://www.bmz.de/en/countries/mongolia/economic-situation-181002

71 World Bank Group. Country Climate and Development Report – Mongolia. 2024. https://documents1.worldbank.org/curated/en/099101624054532319/pdf/P500504-f824093a-2164-4358-a355-a3193194f3e9.pdf

72 Chuluunbat, Narantuya. The hidden cost of Mongolia's mining boom. East Asia Forum. 7 February 2025. https://eastasiaforum.org/2025/02/07/the-hidden-cost-of-mongolias-mining-boom/

73 Federal Ministry for Economic Cooperation and Development (Germany). Economic and Social Situation – Strong focus on natural resources. 5 February 2025. https://www.bmz.de/en/countries/mongolia/economic-situation-181002

74 Chuluunbat, Narantuya. The hidden cost of Mongolia's mining boom. East Asia Forum. 7 February 2025. https://eastasiaforum.org/2025/02/07/the-hidden-cost-of-mongolias-mining-boom/

75 Federal Ministry for Economic Cooperation and Development (Germany). Economic and Social Situation – Strong focus on natural resources. 5 February 2025. https://www.bmz.de/en/countries/mongolia/economic-situation-181002

76 World Bank Group. Country Climate and Development Report – Mongolia. 2024. https://documents1.worldbank.org/curated/en/099101624054532319/pdf/P500504-f824093a-2164-4358-a355-a3193194f3e9.pdf

77 Asian Development Bank. Asian Development Outlook – Trade Uncertainty Challenges Resilience in Asia and the Pacific. April 2025. https://www.adb.org/sites/default/files/publication/1044336/asian-development-outlook-april-2025.pdf

78 Mongolia. Ministry of Nature and Environment. Country Report on Natural Disasters in Mongolia. Accessed 10 Aug 2025. https://www.adrc.asia/countryreport/MNG/MNGeng98/index.pdf#:~:text=Blizzards%20occur%20in%20Mongolia%20generally,up%20to%2035%20m%2Fs%20wind

79 UNDP Climate Change Adaptation. Preserving nomadic tradition in a changing climate: The path forward for Mongolian herders. 28 Sept 2023. https://www.adaptation-undp.org/preserving-nomadic-tradition-changing-climate-path-forward-mongolian-herders; Delgerjargal, Zaya. Yale Environment 360. In Mongolia, a Killer Winter Is Ravaging Herds and a Way of Life

6 March 2024. https://e360.yale.edu/features/mongolia-dzud-climate-change.

80 Han J, Dai H, Gu Z. Sandstorms and desertification in Mongolia, an example of future climate events: a review. Environ Chem Lett. 2021;19(6):4063-4073. doi: 10.1007/s10311-021-01285-w. Epub 2021 Jul 24. PMID: 34335128; PMCID: PMC8302971; Xiaoyu Meng, Xin Gao, Sen Li, Shengyu Li, Jiaqiang Lei, Monitoring desertification in Mongolia based on Landsat images and Google Earth Engine from 1990 to 2020, Ecological Indicators, Volume 129, 2021, 107908, ISSN 1470-160X, https://doi.org/10.1016/j.ecolind.2021.107908.

81 Anchukaitis, K. J., et al. 2017. Unprecedented 21st century drought risk in Mongolia. Scientific Reports. https://www.researchgate.net/publication/323763401_Past_and_future_drought_in_Mongolia; Mongolia faces significant exposure to natural hazards, including drought, dzud, dust storms, earthquakes, epidemic disease, extreme temperatures, flooding, and wildfires.; Intergovernmental Panel on Climate Change (IPCC). 2023. AR6 Climate Change 2023: Impacts, Adaptation, and Vulnerability. https://www.ipcc.ch/report/ar6/wg2/; Naumann, G., Alfieri, L., Wyser, K., Men-

taschi, L., Betts, R. A., Carrao, H., et al. 2018. Global changes in drought conditions under different levels of warming. Geophysical Research Letters, 45, 3285-3296. https://www.researchgate.net/publication/324023562_Global_Changes_in_Drought_Conditions_Under_Different_Levels_of_Warming.

82 World Bank Group. "Mongolia," Climate Change Knowledge Portal, World Bank. Accessed 28 June 2025. https://climateknowledgeportal.worldbank.org/country/mongolia/vulnerability; United Nations Convention to Combat Desertification (UNCCD). 9 March 2023. Global Desertification Map and Country Report: Mongolia. https://www.unccd.int / https://www.unccd.int/sites/default/files/national-reports/2022/MNG/UNCCD%20National%20Report%202022%20MNG.pdf.

83 Han J, Dai H, Gu Z. Sandstorms and desertification in Mongolia, an example of future climate events: a review. Environ Chem Lett. 2021;19(6):4063-4073. doi: 10.1007/s10311-021-01285-w. Epub 2021 Jul 24. PMID: 34335128; PMCID: PMC8302971. https://pmc.ncbi.nlm.nih.gov/articles/PMC8302971/; "Mongolia," Climate Change Knowledge Portal, World Bank. 2021. https://climateknowledgeportal.worldbank.org/country/mongolia/vulnerability.

84 Han J, Dai H, Gu Z. Sandstorms and desertification in Mongolia, an example of future climate events: a review. Environ Chem Lett. 2021;19(6):4063-4073. doi: 10.1007/s10311-021-01285-w. Epub 2021 Jul 24. PMID: 34335128; PMCID: PMC8302971. https://pmc.ncbi.nlm.nih.gov/articles/PMC8302971/.

85 IFRC. 30 Sept. 2021. Mongolia: Sandstorm - DREF Operation n° MDRMN014 Final Report. https://www.ifrc.org/media/49651.

86 Bayartsogt, Khaliun, and Emily Feng. "Buried Alive in Mongolia's Worst Sandstorms in a Decade," NPR, 30 May 2021. https://www.npr.org/sections/goatsandsoda/2021/05/30/1000530563/buried-alive-in-mongolias-worst-sandstorms-in-a-decade.

87 Lkhaajav, Bolor. 14 June 2022. Mongolia's 1 Billion Tree Movement. The Diplomat. https://thediplomat.com/2022/06/mongolias-1-billion-tree-movement/.

88 Mu, F., & Fiedler, S. 15 Feb 2025. How much do atmospheric depressions and Mongolian cyclones contribute to spring dust activities in East Asia? npj Climate and Atmospheric Science, 8, 51. https://www.nature.com/articles/s41612-025-00929-w.

89 OCHA. Mongolia: Dzud Response Plan (Dec 2023-June 2024) (Issued 25 March 2024). https://www.unocha.org/publications/report/mongolia/mongolia-dzud-response-plan-dec-2023-june-2024-issued-25-march-2024.

90 Food and Agriculture Organization of the United Nations. 6 May 2024. GIEWS Update – Mongolia: Extreme winter weather, known as dzud, is driving up acute food insecurity of pastoral households in the country. Retrieved from FAO Knowledge Repository. https://openknowledge.fao.org/bitstreams/15e4c631-c3b1-4b54-9dc4-41738cc8c8fb/download.

91 Buckley, M. June 2012. Mongolia: Enhancing Policies and Practices for Ger Area Development in Ulaanbaatar. Prepared for the World Bank. https://documents1.worldbank.org/curated/en/986161468053662281/pdf/718440WP0P12770201208-01-120revised.pdf.

92 Delgerjargal, Zaya. Yale Environment 360. 6 March 2024. https://e360.yale.edu/features/mongolia-dzud-climate-change.

93 Food and Agriculture Organization of the United Nations. 6 May 2024. GIEWS Update – Mongolia: Extreme winter weather, known as dzud, is driving up acute food insecurity of pastoral households in the country. Retrieved from FAO Knowledge Repository. https://openknowledge.fao.org/bitstreams/15e4c631-c3b1-4b54-9dc4-41738cc8c8fb/download.

94 World Bank 2024. Agriculture, Forestry, and Fishing, Value Added (% of GDP) – Mongolia. https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=MN.

95 "Mongolia: Earthquake," ThinkHazard!, GFDRR. Accessed 1 Aug 2025. https://thinkhazard.org/en/report/167-mongolia/EQ.

96 Rizza, M., Ritz, J-F., Prentice, C. et. al. USGS. Earthquake geology of the Bulnay Fault (Mongolia). 13 January 2015. https://pubs.usgs.gov/publication/70189611.

97 "Mongolia's National Council on Disaster Risk Reduction convened," UN Mongolia, 27 July 2021. https://mongolia.un.org/en/137512-mongolia%E2%80%99s-national-council-disaster-risk-reduction-convened.

98 USGS. M 8.1 - 153 km SW of Bayankhongor, Mongolia. Shake Map. 4 Dec 1957. https://earthquake.usgs.gov/earthquakes/eventpage/iscgem887636/impact.

99 CAREC Program. Country Risk Profile Mongolia. Accessed 13 Aug 2025. https://www.carecprogram.org/uploads/CAREC-Risk-Profiles_Mongolia.pdf

100 Al-Ashkar, A., Schlupp, A., Ferry, M., and Munkhuu, U.: Tectonic Geomorphology and Paleoseismology of the Sharkhai fault: a new source of seismic hazard for Ulaanbaatar (Mongolia), Solid Earth, 13, 761–777, 31 March 2022. https://doi.org/10.5194/se-13-761-2022, 2022. https://se.copernicus.org/articles/13/761/2022/; Yasuhiro Suzuki, et al. 30 September 2020 Discovery of Ulaanbaatar Fault: A New Earthquake Threat to the Capital of Mongolia. https://pubs.geoscienceworld.org/ssa/srl/article-abstract/92/1/437/591403/Discovery-of-Ulaanbaatar-Fault-A-New-Earthquake

101 Suzuki, Y. Nakata, T. Watanabe, M. Sukhee, B. et al. Discovery of Ulaanbaatar Fault: A new Earthquake Threat to the Capital of Mongolia. September 2020. DOI:10.1785/0220200109.

102 United Nations Department of Safety and Security. UNDSS Comms. Mongolia Builds Awareness for Seismic Disasters. 12 Aug 2022. https://www.un.org/tr/safety-and-security/en/Mongolia-Builds-Awareness-for-Seismic-Disasters.

103 World Health Organization. 25 April 2025. Strengthening Mongolia's response to zoonotic diseases. https://www.who.int/mongolia/news/detail/25-04-2025-strengthening-mongolia-s-response-to-zoonotic-diseases.

104 University of Nebraska Medical Center. 8 Aug 2023. Bubonic plague case reported in Mongolian capital. https://www.unmc.edu/healthsecurity/transmission/2023/08/08/bubonic-plague-case-reported-in-mongolian-capital/.

105 National Center for Zoonotic Diseases (NCZD). Accessed 1 Aug 2025. Wildlife epidemiology presentation [Conference presentation]. https://rr-asia.woah.org/app/uploads/2022/10/dr-mungunbagana_wildlife_eng_nczd.pdf.

106 Matulis, G.A., Altantogtokh, D., Lan-

tos, P.M., Jones, J.H., Wofford, R.N., Janko, M., Tsogbadrakh, N., Bayar, T., Ganzorig, S., Boldbaatar, B., Poole-Smith, B. K., Hertz, J., Fiorenzano, J., von Fricken, M. E. (2022). Hotspots in a cold land-reported cases of rabies in wildlife and livestock in Mongolia from 2012–2018. Zoonoses and Public Health, 69, 655- 662. https://doi.org/10.1111/zph.12954. Wiley Online Library. 18 May 2022. https://onlinelibrary.wiley.com/doi/epdf/10.1111/zph.12954.

107 FAO 2020. Carcass management guidelines – Effective disposal of animal carcasses and contaminated materials on small to medium-sized farms. FAO Animal Production and Health Guidelines No. 23. Rome. Accessed 1 Aug 2025. Retrieved from FAO Knowledge Repository. https://www.fao.org/fileadmin/user_upload/remesa/library/FAO%20Carcass%20Management%20guidelines.pdf.

108 IFRC. 5 June 2008. Mongolia: Hand, Foot and Mouth Disease Emergency Bulletin No. 1. https://reliefweb.int/report/mongolia/mongolia-hand-foot-and-mouth-disease-outbreak-information-bulletin-n-1?.com.

109 World Health Organization. 25 April 2025. Strengthening Mongolia's response to zoonotic diseases. https://www.who.int/mongolia/news/detail/25-04-2025-strengthening-mongolia-s-response-to-zoonotic-diseases; Khankhuu, J. Montsame. 1 May 2024. Mongolia Opens Second Biosafety Level 3 Lab. https://montsame.mn/en/read/342961.

110 UNDP. 17 May 2023. Impacts of Changing Climate on Mongolia's Nomadic Herder. United Nations Development Programme. https://www.undp.org/mongolia/stories/impacts-changing-climate-mongolias-nomadic-herder.

111 Zhu, G., & Zhao, X. 22 July 2023. Changes of extreme climate indices on the Mongolian Plateau during 1981–2020 based on ERA5 reanalysis. Theoretical and Applied Climatology, 154, 467–482. https://link.springer.com/article/10.1007/s00704-023-04567-1.

112 World Bank. Accessed 1 Aug 2025. Mongolia - Heat Risk. Climate Change Knowledge Portal. https://climateknowledgeportal.worldbank.org/country/mongolia/heat-risk.

113 UNDP. 17 May 2023. Impacts of Changing Climate on Mongolia's Nomadic Herder. United Nations Development Programme. https://www.undp.org/mongolia/stories/impacts-changing-climate-mongolias-nomadic-herder.

114 Munkhjargal E, Shinoda M, Iijima Y, Nandintseteseg B. Recently increased cold air outbreaks over Mongolia and their specific synoptic pattern. Int J Climatol. 2020; 40: 5502–5514. 21 Feb 2020. https://doi.org/10.1002/joc.6531.

115 Zamba, Batjargal. Mongolia Ministry of Environment and Tourism. Third National Communication of Mongolia (TNC) Under the United Nations Framework 2018. May 2018. Convention on Climate Change. https://www4.unfccc.int/sites/SubmissionsStaging/NationalReports/Documents/06593841_Mongolia-NC3-2-Mongolia%20TNC%202018%20print%20version.pdf#page=125.

116 Xinhua News. 19 Dec 2023. Strong Cold Wave Hits Large Parts of Mongolia. Archived at: https://english.news.cn/asiapacific/20231215/3cfdd88175dd42f794750aa1185ac0a8/c.html; Newsflare. 15 Dec 2023. Strong cold wave hits large parts of Mongolia. https://www.newsflare.com/video/612834/strong-cold-wave-hits-large-parts-of-mongolia?a=on; Investing.com. 27 Jan 2025. Overnight temperature drops to -44.4°C in western Mongolia. https://in.investing.com/news/world-news/overnight-temperature-drops-to-minus-444-degrees-celsius-in-western-mongolia-4631055.

117 UNICEF. 2 April 2024. UNICEF launches project to improve sanitation and hygiene in flood vulnerable areas. UNICEF Mongolia. https://www.unicef.org/mongolia/press-releases/unicef-launches-project-improve-sanitation-and-hygiene-flood-vulnerable-areas.

118 CAREC (Central Asia Regional Economic Cooperation Region). 2022. Country Risk Profile: Mongolia. Accessed 28 June 2025. https://www.carecprogram.org/uploads/CAREC-Risk-Profiles_Mongolia.pdf.

119 D. Oyunbaatar, "Floods in Mongolia," Hydrology section, Institute of Meteorology and Hydrology, Ulaanbaatar. https://www.restec.or.jp/geoss_ap3/pdf/day2/WG/WG2/Short_Country_Reports/08_Mongolia.pdf#:~:text=Spring%20floodstarts%20from%20mid%20of%20April%20till%20end,70-80%20percent%20forms%20during%20rainfall%20floodsin%20summer%20period.

120 CAREC (Central Asia Regional Economic Cooperation Region). 2022. Country Risk Profile: Mongolia. Accessed 28 June 2025. https://www.carecprogram.org/uploads/CAREC-Risk-Profiles_Mongolia.pdf.

121 Caldieron, J., Miller, R., Bodurow Stallmeyer, C., Wiley, S., & Szymanik, B. 2010. Residential satisfaction in the informal neighborhoods of Ulaanbaatar, Mongolia. ARCC Journal of Architectural Research, 7(1), 1–13. 27 March 2013. https://doi.org/10.17831/enq:arcc.v7i1.73, https://www.arcc-journal.org/index.php/arccjournal/article/download/73/63.

122 UNDRR. 2019. Accessed 28 June 2025. Disaster Risk Reduction in Mongolia. https://www.undrr.org/publication/disaster-risk-reduction-mongolia-status-report-2019.

123 Purevsuren, Oyunbat & Altangerel, Munkh-Erdene & Enkhbayar, Batsaikhan & Ochirbat, Batkhishig & Myagmartseren, Purevtseren. (2022). ENVIRONMENTAL IMPACT ASSESSMENT OF PIT LATRINES USING REMOTE SENSING AND MULTI-CRITERIA SPATIAL ANALYSIS IN ULAANBAATAR (GER AREA), MONGOLIA. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences. XLIII-B3-2022. 1279-1285. 10.5194/isprs-archives-XLIII-B3-2022-1279-2022. May 2022. https://www.researchgate.net/publication/360980924_ENVIRONMENTAL_IMPACT_ASSESSMENT_OF_PIT_LATRINES_USING_REMOTE_SENSING_AND_MULTI-CRITERIA_SPATIAL_ANALYSIS_IN_ULAANBAATAR_GER_AREA_MONGOLIA.

124 Bordoni, Linda. 12 July 2023. Vatican News- Floods in Mongolia displace thousands. https://www.vaticannews.va/en/world/news/2023-07/floods-mongolia-ulaanbaatar-climate-crisis-relief.html.

125 World Bank Group. 26 June 2018. Better Air Quality in Ulaanbaatar Begins in Ger Areas. https://www.worldbank.org/en/news/feature/2018/06/26/better-air-quality-in-ulaanbaatar-begins-in-ger-areas; ReliefWeb. Flood resilience building through local community action in Ger areas of Ulaanbaatar city, Mongolia, UN-HABITAT, 23 November 2021. Retrieved from: https://reliefweb.int/report/mongolia/flood-resilience-building-through-local-community-action-ger-areas-ulaanbaatar-city.

126 Mongolia. Ministry of Nature and Environment. Country Report on Natural Disasters in Mongolia. Accessed 10 Aug 2025. https://www.adrc.asia/countryreport/MNG/MNGeng98/index.pdf#:~:text=Blizzards%20occur%20in%20Mongolia%20generally,up%20to%2035%20m%2Fs%20wind

127 Myagmar, D., Gomes, C. Geomatics, Natural Hazards and Risks. March 2015. Lightning incidents in Mongolia. DOI:10.1080/19475705.2015.1020888. https://www.research-

gate.net/publication/274952581_Lightning_incidents_in_Mongolia#:~:text=to%202013,We

128 Wang, J., Chen, L., & Li, S. 19 Dec 2023. Characteristics of spring Mongolian cyclones in the recent 70 years: Background circulations and weather influences. International Journal of Climatology, 44(1), 328–343. https://doi.org/10.1002/joc.8342; Cholaw Bueh, Anran Zhuge, Zuowei Xie, Mei Yong, Gomboluudev Purevjav, The development of a powerful Mongolian cyclone on 14–15 March 2021: Eddy energy analysis, Atmospheric and Oceanic Science Letters, Volume 15, Issue 6, 2022, 100259, ISSN 1674-2834, 23 Sept 2022. https://doi.org/10.1016/j.aosl.2022.100259; Lee, J., Son, SW., Cho, HO. et al. Extratropical cyclones over East Asia: climatology, seasonal cycle, and long-term trend. Clim Dyn 54, 1131–1144 (2020). 12 Nov 2019. https://doi.org/10.1007/s00382-019-05048-w; Han, W., Chen, S.J. & Egger, J. Altai-Sayan lee cyclogenesis: Numerical simulations. Meteorl. Atmos. Phys. 55, 125–134 (1995). September 1995. https://doi.org/10.1007/BF01029822.

129 World Bank Group. GFDRR. Mongolia. Accessed 24 June 2025. https://thinkhazard.org/en/report/167-mongolia/EH. ThinkHazard! is available under the GNU General Public License, Version 3, 29 June 2007; Global Fire Monitoring Center. Accessed 1 Aug 2025. Mongolia Fire Risk Assessment. https://gfmc.online.

130 Kazato, M., & Soyollham, B. 29 Aug 2022. Forest-steppe fires as moving disasters in the Mongolia-Russian borderland. Journal of Contemporary East Asia Studies, 11(1), 22–45. https://doi.org/10.1080/24761028.2022.2113493 / https://www.tandfonline.com/doi/full/10.1080/24761028.2022.2113493.

131 UNFCCC. Fourth National Communication of Mongolia Under the United Nations Framework Convention on Climate Change. April 2024. https://unfccc.int/sites/default/files/resource/MONGOLIA%20FOURTH%20NC%202024.pdf.

132 Bao, Yulong, Masato Shinoda, Kunpeng Yi, Xiaoman Fu, Long Sun, Elbegjargal Nasanbat, Na Li, Honglin Xiang, Yan Yang, Bulgan DavdaiJavzmaa, et al. 2023. “Satellite-Based Analysis of Spatiotemporal Wildfire Pattern in the Mongolian Plateau” Remote Sensing 15, no. 1: 190. 29 Dec 2022. https://doi.org/10.3390/rs15010190; Murad Ahmed FARUKH, Hiroshi HAYASAKA, Odbayar MISHIGDORJ, Recent Tendency of Mongolian Wildland Fire Incidence: Analysis Using MODIS Hotspot and Weather Data, Journal of Natural Disaster Science, 2009, Volume 31, Issue 1, Pages 23-33, Released on J-STAGE August 31, 2010, Online ISSN 2434-6705, Print ISSN 0388-4090, https://doi.org/10.2328/jnds.31.23, https://www.jstage.jst.go.jp/article/jnds/31/1/31_1_23/_article.

133 UNDP. Government of Mongolia, Ministry of Environment and Tourism. Fire Management in Mongolia: a Changing Climate. Accessed 1 Aug 2025. https://www.undp.org/sites/g/files/zskgke326/files/migration/mn/4---Brief-Fire-Management.pdf; Nasanbat, E., & Lkhamjav, O. 19 July 2016. Wild Fire Risk Map in the Eastern Steppe of Mongolia Using Spatial Multi-Criteria Analysis. ISPRS Archives, XLI-B1, 469-474. https://isprs-archives.copernicus.org/articles/XLI-B1/469/2016/isprs-archives-XLI-B1-469-2016.pdf.

134 Nasanbat, E., & Lkhamjav, O. 19 July 2016. Wild Fire Risk Map in the Eastern Steppe of Mongolia Using Spatial Multi-Criteria Analysis. ISPRS Archives, XLI-B1, 469-474. https://isprs-archives.copernicus.org/articles/XLI-B1/469/2016/isprs-archives-XLI-B1-469-2016.pdf.

135 Menzel, L., et al. 2 May 2016. Effects of wildfire on runoff generating processes in northern Mongolia. Regional Environmental Change, 16(4), 1045–1059. https://doi.org/10.1007/s10113-016-0962-y.

136 Tong, S., Li, X., Zhang, J., Bao, Y., et al. 1 Feb 2019. Spatial and temporal variability in extreme temperature and precipitation events in Inner Mongolia (China) during 1960–2017. Science of the Total Environment, 649, 75–89. https://doi.org/10.1016/j.scitotenv.2018.08.262.

137 UN Development Programme. Socio-Economic Impact Assessment of Dzud 2023-2024 and Dzud Resilience Strategy Policy Recommendations, Mongolia. 2025. https://www.undp.org/sites/g/files/zskgke326/files/2025-05/dzud_resilience_strategy_final_5-28.pdf

138 National Emergency Management Agency. Disasters and accidents, in the first 8 months of 2024. National Statistics Office. 12 September 2024. https://nso.mn/en/dissemination/72995915

139 Centre for Research on the Epidemiology of Disasters (CRED). Entry Criteria: Minimal Requirements for a Disaster to Be Entered in EM-DAT. Accessed 2 June 2025. https://doc.emdat.be/docs/protocols/entry-criteria/

140 UN Development Programme. Socio-Economic Impact Assessment of Dzud 2023-2024 and Dzud Resilience Strategy Policy Recommendations, Mongolia. 2025. https://www.undp.org/sites/g/files/zskgke326/files/2025-05/dzud_resilience_strategy_final_5-28.pdf

141 Lattimore, Owen; and Sanders, Alan J.K. Mongolia. Encyclopedia Britannica. 3 June 2025. https://www.britannica.com/place/Mongolia

142 Global Disaster Alert and Coordination System (GDACS). Forest Fire (5749 ha) in Mongolia 09 March 2025. Accessed 13 Aug 2025. https://www.gdacs.org/report.aspx?episodeid=1&eventid=1023574&eventtype=WF; Montsame Mongolian National News Agency. Emergency Task Force Established to Support Households Impacted by Wildfires. 11 March 2025. https://montsame.mn/en/read/363725.

143 Enkh-Od.G. Montsame Mongolian National News Agency. 30 June 2025. A Total of 12 Wildfires Extinguished Nationwide. https://montsame.mn/en/read/373149.

144 Centre for Policy Research. 6 Dec 2024. CPR evaluated the major impacts of the 2023-2024 dzud on the livestock sector of Mongolia. Centre for Policy Research, Mongolia. https://www.cpr.mn/?p=910&lang=en.

145 WHO (World Health Organization). 4 April 2024. Dzud emergency in Mongolia moves to risk of floods and environmental contamination. https://www.who.int/mongolia/news/detail/04-04-2024-dzud-emergency-in-mongolia-moves-to-risk-of-floods-and-environmental-contamination; ReliefWeb. 2023. Accessed 1 Aug 2025. Mongolia: Dzud - Dec 2023. United Nations Office for the Coordination of Humanitarian Affairs. https://reliefweb.int/disaster/cw-2023-000262-mng.

146 Centre for Policy Research. 6 Dec 2024. CPR evaluated the major impacts of the 2023-2024 dzud on the livestock sector of Mongolia. Centre for Policy Research, Mongolia. https://www.cpr.mn/?p=910&lang=en; Altansukh, B., Akbar, R., & Ankhzaya, B. Asia Pathways. 22 Nov. 2024. How Climate Change Is Fueling the Dzud Crisis in Mongolia. Asian Development Bank Institute. https://www.asiapathways-adbi.org/2024/11/how-climate-change-is-fueling-the-dzud-crisis-in-mongolia/.

147 ReliefWeb. 2023. Accessed 1 Aug 2025. Mongolia:

Dzud - Dec 2023. United Nations Office for the Coordination of Humanitarian Affairs. https://reliefweb.int/disaster/cw-2023-000262-mng; ReliefWeb. Source: Save the Children. 2 March 2024. Mongolia's extreme winter: 5.2 million livestock dead as children miss out on school. https://reliefweb.int/report/mongolia/mongolias-extreme-winter-52-million-livestock-dead-children-miss-out-school.

148 ReliefWeb. 2023. Accessed 1 Aug 2025. Mongolia: Dzud - Dec 2023. United Nations Office for the Coordination of Humanitarian Affairs. https://reliefweb.int/disaster/cw-2023-000262-mng.

149 ReliefWeb. Mongolia: Cold Wave 2023 (snow and dust storm), Operation Update DREF Operation MDRMN018. Situation Report. Source: IFRC. 28 August 2023. https://reliefweb.int/report/mongolia/mongolia-cold-wave-2023-snow-and-dust-storm-operation-update-dref-operation-mdrmn018.

150 ReliefWeb. 2023. Accessed on 11 July 2025. Mongolia: Cold Wave - May 2023. Retrieved from https://reliefweb.int/disaster/cw-2023-000078-mng.

151 IFRC (International Federation of Red Cross and Red Crescent Societies). 28 Aug 2023. Mongolia: Cold Wave 2023 (snow and dust storm), Operation Update DREF Operation MDRMN018. ReliefWeb. Retrieved from https://reliefweb.int/report/mongolia/mongolia-cold-wave-2023-snow-and-dust-storm-operation-update-dref-operation-mdrmn018.

152 ReliefWeb. Mongolia: Cold Wave 2023 (snow and dust storm), Operation Update DREF Operation MDRMN018. Situation Report. Source: IFRC. 28 August 2023. https://reliefweb.int/report/mongolia/mongolia-cold-wave-2023-snow-and-dust-storm-operation-update-dref-operation-mdrmn018.

153 ReliefWeb. 2023. Accessed on 11 July 2025. Mongolia: Cold Wave - May 2023. Retrieved from https://reliefweb.int/disaster/cw-2023-000078-mng.

154 IFRC (International Federation of Red Cross and Red Crescent Societies). 28 Aug 2023. Mongolia: Cold Wave 2023 (snow and dust storm), Operation Update DREF Operation MDRMN018. ReliefWeb. August 28, 2023. Retrieved from https://reliefweb.int/report/mongolia/mongolia-cold-wave-2023-snow-and-dust-storm-operation-update-dref-operation-mdrmn018.

155 Biro, Peter. Delegation of the European Union to Mongolia. 21 July 2023. European Union brings relief to victims of floods in Mongolia. https://www.eeas.europa.eu/delegations/mongolia/european-union-brings-relief-victims-floods-mongolia_en.

156 Lkhaajav, Bolor. The Diplomat. 29 August 2023. The Hidden Cause Behind Mongolia's Deadly Summer Floods. https://thediplomat.com/2023/08/the-hidden-cause-behind-mongolias-deadly-summer-floods/; Bayartsogt, Khaliun. Dialogue Earth. 22 Nov 2022. https://dialogue.earth/en/water/in-cold-dry-mongolia-floods-are-now-common-with-devastating-urban-impacts/.

157 Erkhembayar R, Dickinson E, Badarch D, Narula I, Warburton D, Thomas GN, Ochir C, Manaseki-Holland S. Early policy actions and emergency response to the COVID-19 pandemic in Mongolia: experiences and challenges. 23 July 2020. Lancet Glob Health. 2020 Sep;8(9):e1234-e1241. doi: 10.1016/S2214-109X(20)30295-3. Epub 2020 Jul 23. Erratum in: Lancet Glob Health. 2020 Sep;8(9):e1131. doi: 10.1016/S2214-109X(20)30367-3. PMID: 32711684; PMCID: PMC7377809. https://pmc.ncbi.nlm.nih.gov/articles/PMC7377809/.

158 Worldometer. 13 April 2024. Mongolia COVID - Coronavirus statistics. https://www.worldometers.info/coronavirus/country/mongolia/.

159 Ganzon JG, Lin X, Shehata DJ, Gandour G, Turay FU, Bah AS, Camua AAR, Ahmadi A, Lucero-Prisno DE 3rd. A perspective on impeding the COVID-19 pandemic: Lessons from Mongolia's comprehensive countermeasure. Health Sci Rep. 28 Dec 2022. 28;6(1):e1017. doi: 10.1002/hsr2.1017. PMID: 36589634; PMCID: PMC9795373. https://pmc.ncbi.nlm.nih.gov/articles/PMC9795373/.

160 Sharma, Riya. The Borgen Project. 11 Oct 2021. The impact of COVID-19 on poverty in Mongolia. https://borgenproject.org/impact-of-covid-19-on-poverty-in-mongolia/.

161 World Bank. 18 Oct 2022. Mongolia post-COVID-19: Risks to an inclusive recovery. https://blogs.worldbank.org/en/eastasiapacific/mongolia-post-covid-19-risks-inclusive-recovery.

162 ReliefWeb. 29 Sept 2023. Mongolia Cold Wave 2022, DREF Final Report (MDRMN017). United Nations Office for the Coordination of Humanitarian Affairs. https://reliefweb.int/report/mongolia/mongolia-cold-wave-2022-dref-final-report-mdrmn017.

163 NASA Earth Observatory. 21 April 2022. Spring fire on the steppe. Retrieved from https://earthobservatory.nasa.gov/images/149741/spring-fire-on-the-steppe; UNDRR. Mongolia: Forest and Steppe Fire Monitoring in Mongolia Using Satellite Remote Sensing. (IFFN No. 21 – September 1999). https://gfmc.online/iffn/country/mn/mn_7.html.

164 NASA Earth Observatory. 21 April 2022. Spring fire on the steppe. Retrieved from https://earthobservatory.nasa.gov/images/149741/spring-fire-on-the-steppe.

165 Kazato, M. Soyollham, B. Frames. 2022. Record Last Modified 29 Aug 2024. Forest-steppe fires as moving disasters in the Mongolia-Russian borderland. https://www.frames.gov/catalog/66919.

166 ReliefWeb. Accessed on 11 July 2025. Mongolia: Flash floods - Jul 2022. International Federation of Red Cross and Red Crescent Societies. https://reliefweb.int/disaster/ff-2022-000278-mng.

167 WHO. 4 April 2024. Dzud emergency in Mongolia moves to risk of floods and environmental contamination. World Health Organization. https://www.who.int/mongolia/news/detail/04-04-2024-dzud-emergency-in-mongolia-moves-to-risk-of-floods-and-environmental-contamination.

168 RiskLayer. Earthquake Impact Database. Accessed 11 July 2025. https://www.risklayer-explorer.com/impact?page=23.

169 Timoshkina, E.P., Mikhailov, V.O., Smirnov, V.B. et al. Model of the Rupture Surface of the Khuvsgul Earthquake of January 12, 2021, From InSAR Data. Izv., Phys. Solid Earth 58, 74–79 (2022). 11 Feb 2022. https://doi.org/10.1134/S1069351322010098; Mongolian Academy of Sciences. 23 June 2021. The 2021 Mw 6.7 Khankh Earthquake in the Khuvsgul Rift, Mongolia. Mongolian Geological Studies, 27(1). https://www.mongoliajol.info/index.php/MGS/article/view/1361.

170 Mongolian Academy of Sciences. 23 June 2021. The 2021 Mw 6.7 Khankh Earthquake in the Khuvsgul Rift, Mongolia. Mongolian Geological Studies, 27(1). https://www.mongoliajol.info/index.php/MGS/article/view/1361.

171 Han, J., Dai, H. & Gu, Z. Sandstorms and desertification in Mongolia, an example of future climate events: a review. Environ Chem Lett 19, 4063–4073. 24 July 2021. https://doi.org/10.1007/s10311-021-01285-w; ReliefWeb. Accessed 11 July 2025. Mongolia: Sandstorm - Mar 2021. Retrieved from https://reliefweb.int/disaster/st-2021-000024-mng.

172 Mu H, Otani S, Shinoda M, Yokoyama Y, Onishi K, Hosoda T, Okamoto M, Kurozawa Y. Long-term effects of livestock loss caused by dust storm on mongolian inhabitants: a survey 1 year after the dust storm. Yonago Acta Med. 2013 Mar;56(1):39-42. Epub 2013 Mar 1. PMID: 24031150; PMCID: PMC3760490. 1 March 2013. https://pmc.ncbi.nlm.nih.gov/articles/PMC3760490/.

173 Mikalai Filonchyk, Characteristics of the severe March 2021 Gobi Desert dust storm and its impact on air pollution in China, Chemosphere, Volume 287, Part 3, 2022, 132219, ISSN 0045-6535. January 2022. https://doi.org/10.1016/j.chemosphere.2021.132219.

174 Kelly, Maura. AccuWeather. 16 March 2021. 'It looks like the end of the world': Massive sandstorm envelops Chinese capital. https://www.accuweather.com/en/severe-weather/air-quality-worsens-in-beijing-after-powerful-sandstorm-lashes-city/915325.

175 Mikalai Filonchyk, Characteristics of the severe March 2021 Gobi Desert dust storm and its impact on air pollution in China, Chemosphere, Volume 287, Part 3, 2022, 132219, ISSN 0045-6535. January 2022. https://doi.org/10.1016/j.chemosphere.2021.132219.

176 WHO. 28 Feb 2024. Severe dzud in Mongolia hinders access to health care for thousands. Retrieved from https://www.who.int/mongolia/news/detail/28-02-2024-severe-dzud-in-mongolia-hinders-access-to-health-care-for-thousands.

177 ReliefWeb. IFRC. 5 Aug 2021. Mongolia: Flash Floods - Emergency Plan of Action (EPoA) DREF Operation n° MDRMN015. https://reliefweb.int/report/mongolia/mongolia-flash-floods-emergency-plan-action-epoa-dref-operation-n-mdrmn015.

178 ReliefWeb. 17 July 2020. Mongolia: Flash floods - Information bulletin. IFRC. Retrieved from https://reliefweb.int/report/mongolia/mongolia-flash-floods-information-bulletin-17-july-2020.

179 ReliefWeb. 9 July 2020. Mongolia - Flash floods (FloodList, NOAA-CPC, media) (ECHO Daily Flash). Retrieved from https://reliefweb.int/report/mongolia/mongolia-flash-floods-floodlist-noaa-cpc-media-echo-daily-flash-09-july-2020

180 ReliefWeb. 17 July 2020. Mongolia: Flash floods - Information bulletin. IFRC. Retrieved from https://reliefweb.int/report/mongolia/mongolia-flash-floods-information-bulletin-17-july-2020.

181 ReliefWeb. 9 July 2020. Mongolia - Flash floods (FloodList, NOAA-CPC, media) (ECHO Daily Flash). Retrieved from https://reliefweb.int/report/mongolia/mongolia-flash-floods-floodlist-noaa-cpc-media-echo-daily-flash-09-july-2020.

182 ReliefWeb. 9 January 2020. Mongolia: Dzud - Jan 2020. International Federation of Red Cross and Red Crescent Societies. https://reliefweb.int/disaster/cw-2020-000004-mng.

183 Photo by Christine Jost/USAID. Source: USAID-OFDA Agriculture and Food Security Sector Update, Fiscal Year 2018. 5 February 2019. https://reliefweb.int/report/world/usaid-ofda-agriculture-and-food-security-sector-update-fiscal-year-2018

184 United Nations in Mongolia. Bolstering Preparedness and Risk Reduction in Mongolia: CADRI Partnership's Support for the Land of the Eternal Blue Sky, 9 January 2025. https://mongolia.un.org/en/287070-bolstering-preparedness-and-risk-reduction-mongolia-cadri-partnership%E2%80%99s-support-land-eternal

185 IFRC. Mongolia, Disaster Law. https://disasterlaw.ifrc.org/node/354

186 Aruintungalag, Batjargal. Country Report: Mongolia, Asian Disaster Reduction Center, Visiting Researcher Program (FY2022). https://www.adrc.asia/countryreport/MNG/2022/Mongolia_CR_FY2022.pdf

187 United Nations in Mongolia. Bolstering Preparedness and Risk Reduction in Mongolia: CADRI Partnership's Support for the Land of the Eternal Blue Sky, 9 January 2025. https://mongolia.un.org/en/287070-bolstering-preparedness-and-risk-reduction-mongolia-cadri-partnership%E2%80%99s-support-land-eternal

188 Government of Mongolia, National Emergency Management Agency. Our Function, accessed 20 June 2025. http://en.nema.gov.mn/function

189 CADRI Partnership. Mongolia: Diagnosis of Capacities to Manage Climate and Disaster Risk, 2024. https://www.cadri.net/system/files/2025-01/Mongolia%20Capacity%20Diagnosis%20Report%20%28English%29%20%281%29_0.pdf

190 CADRI Partnership – Capacity for Disaster Reduction Initiative. Mongolia: Diagnosis of Capacities to Manage Climate and Disaster Risk, 2024. https://www.cadri.net/system/files/2025-01/Mongolia%20Capacity%20Diagnosis%20Report%20%28English%29%20%281%29_0.pdf

191 OCHA. Mongolia: 2024 Dzud Early Action & Response Plan, 19 February 2024. https://www.unocha.org/publications/report/mongolia/mongolia-2024-dzud-early-action-response-plan-dec-2023-may-2024

192 NEMA. Mongolia's National Disaster Response Framework, Exercise Gobi Wolf 2024. (Thanks to USARPAC for providing the slides.)

193 Oyundelger, B. National disaster risk reduction council to be established, Montsame News Agency, 10 May 2017. https://montsame.mn/en/read/129984

194 UN in Mongolia. Bolstering Preparedness and Risk Reduction in Mongolia: CADRI Partnership's Support for the Land of the Eternal Blue Sky, 9 January 2025. https://mongolia.un.org/en/287070-bolstering-preparedness-and-risk-reduction-mongolia-cadri-partnership%E2%80%99s-support-land-eternal

195 Simplified DM System depiction based on two sources. The more comprehensive source is listed first: CADRI Partnership. Mongolia: Diagnosis of Capacities to Manage Climate and Disaster Risk, 2024, https://www.cadri.net/system/ files/2025-01/Mongolia%20Capacity%20Diagnosis%20Report%20%28English%29%20%281%29_0.pdf ;

Ariuntungalag Batjargal. Country Report: Mongolia, Asian Disaster Reduction Center (ADRC), Visiting Researcher Program FY2022, https://www.adrc.asia/countryreport/MNG/2022/Mongolia_CR_FY2022.pdf

196 Mongolia NEMA. Disaster risk reduction local council members participate in training, 12 December 2023. http://en.nema.gov.mn/post/134632

197 CADRI Partnership. Mongolia: Diagnosis of Capacities to Manage Climate and Disaster Risk, 2024. https://www.cadri.net/system/files/2025-01/Mongolia%20Capacity%20Diagnosis%20Report%20%28English%29%20%281%29_0.pdf

198 Government of Mongolia. Vision 2050 Mongolia, p.217. https://www.vision2050.gov.mn/file/AlsiinkharaaEnglish1020.pdf

199 UNDRR. Mongolia moves as one on local resilience, 2 November 2022. https://www.undrr.org/news/mongolia-moves-one-local-resilience

200 UNDRR. Sendai Framework for Disaster Risk Reduction 2015 – 2030. https://www.undrr.org/media/16176/download?startDownload=20250702

201 Mongolia NEMA. Mongolia's National Midterm Review of the Sendai Framework for Disaster Risk Reduction Report, Ulaanbaatar, 2022. https://www.preventionweb.net/publication/mongolia-voluntary-national-report-mtr-sf

202 JICA. The Project for Strengthening the National Capacity of Earthquake Disaster Protection and Prevention in Mongolia Project Completion Report, January 2020. https://libopac.jica.go.jp/images/report/12353173.pdf

203 CADRI Partnership. From Crisis to Classroom: Safeguarding Mongolia's Schools and Educating Youth as Pathways to Disaster Resilience, Medium, 9 October 2024. https://cadri-partnership.medium.com/from-crisis-to-classroom-safeguarding-mongolias-schools-and-educating-youth-as-pathways-to-e9aa5ff3d030

204 Mongolia NEMA. Mongolia's National Midterm Review of the Sendai Framework for Disaster Risk Reduction Report, Ulaanbaatar, 2022. https://www.preventionweb.net/publication/mongolia-voluntary-national-report-mtr-sf

205 Ayurzana Badarch and Batzorig Gansukh. Lessons learnt from recent floods in Ulaanbaatar city and blue-green approaches for future development, XVIII World Water Congress, International Water Resources Association, Beijing, 11-15 September 2023. https://www.iwra.org/proceedings/congress/resource/IWRA2023_Beijing_China_20230913_SS_5_8_ORAL_2_Ayurzana_Lessons_learnt_from_recent_floods_in_Ulaanbaatar_city_and_blue_green_approaches.pdf

206 Bordoni, Linda. Floods displace over 20,000 people in Mongolian capital, Vatican News, 12 July 2023. https://www.vaticannews.va/en/world/news/2023-07/floods-mongolia-ulaanbaatar-climate-crisis-relief.html

207 IFRC. Mongolia: Floods 2023 - DREF Final Report (MDRMN019), 31 December 2023. https://reliefweb.int/report/mongolia/mongolia-floods-2023-dref-final-report-mdrmn019

208 Yeni Safak News. Türkiye, Mongolia agree to further enhance ties, mutual visits. 13 March 2023. https://www.yenisafak.com/en/news/turkiye-mongolia-agree-to-further-enhance-ties-mutual-visits-3661977

209 Institute for Strategic Studies, National Security Council of Mongolia. Mongolian Peacekeeping as a Foreign Policy Tool, 14 May 2024. https://en.iss.gov.mn/?p=1561

210 Institute for Strategic Studies, National Security Council of Mongolia. Mongolian teams working around the clock to save lives, 17 February 2023. https://en.iss.gov.mn/?p=1114

211 United Nations Peacekeeping. Resources – Data – Troop and Police contributors. 30 April 2025. https://peacekeeping.un.org/en/troop-and-police-contributors

212 Government of Mongolia. Vision 2050 Mongolia. https://www.vision2050.gov.mn/file/AlsiinkharaaEnglish1020.pdf

213 O'Neal, Balinda. Gobi Wolf 2024 strengthens partnerships for disaster resilience, U.S. Indo-Pacific Command, 20 May 2024. https://www.pacom.mil/Media/News/News-Article-View/Article/3782159/gobi-wolf-2024-strengthens-partnerships-for-disaster-resilience/

214 U.S. Embassy in Mongolia. United States and Mongolia Successfully Conduct Khangai-21 Disaster Response Exercise. 27 September 2021. https://mn.usembassy.gov/pr-092721/

215 U.S. Embassy in Mongolia. Khaan Quest 2022, 6 June 2022. https://mn.usembassy.gov/khaan-quest-2022/

216 USINDOPACOM Public Affairs Office. Tempest Express Builds Multinational Crisis Response Capabilities. 23 May 2024. https://www.pacom.mil/Media/News/News-Article-View/Article/3786873/tempest-express-builds-multinational-crisis-response-capabilities/

217 UN Mongolia. About – Our Team in Mongolia, accessed 23 July 2025. https://mongolia.un.org/en/about/our-team

218 UN in Mongolia. Bolstering Preparedness and Risk Reduction in Mongolia: CADRI Partnership's Support for the Land of the Eternal Blue Sky, 9 January 2025. https://mongolia.un.org/en/287070-bolstering-preparedness-and-risk-reduction-mongolia-cadri-partnership%E2%80%99s-support-land-eternal

219 UN. Sustainable Development: The 17 Goals. https://sdgs.un.org/goals

220 UNDRR. Chart of the Sendai Framework for Disaster Risk Reduction 2015-2030. https://www.undrr.org/publication/chart-sendai-framework-disaster-risk-reduction-2015-2030

221 UNFCCC. National Adaptation Plan – Mongolia, 8 April 2025. https://unfccc.int/documents/646367

222 Mongolia NEMA. Mongolia's National Midterm Review of the Sendai Framework for Disaster Risk Reduction Report, Ulaanbaatar, 2022. https://www.preventionweb.net/publication/mongolia-voluntary-national-report-mtr-sf

223 Frequently cited is that a peace agreement is 35% more likely to last for 15 years if women participate in its creation. Marie O'Reilly, Andrea Ó Súilleabháin, and Thania Paffenholz, "Reimagining Peacemaking: Women's Roles in Peace Processes," New York: International Peace Institute, June 2015. https://www.ipinst.org/wp-content/uploads/2015/06/IPI-E-pub-Reimagining-Peacemaking.pdf

224 UN Women – Asia and the Pacific. Mongolia advances its commitment to Women, Peace and Security, 17 February 2025. https://asiapacific.unwomen.org/en/stories/feature-story/2025/02/mongolia-advances-its-commitment-to-women-peace-and-security

225 Garamone, Jim. Women, Security, Peace Initiative Militarily Effective. DOD News, 5 November 2020. https://www.war.gov/News/News-Stories/Article/Article/2407094/women-security-peace-initiative-militarily-effective/

226 USINDOPACOM. U.S. Indo-Pacific Command Concludes Second Indo-Pacific Regional Military Gender Advisor Course, 1 October 2024. https://www.pacom.mil/Media/

News/News-Article-View/Article/3923322/us-indo-pacific-command-concludes-second-indo-pacific-regional-military-gender/

227 Asian Development Bank. Women's Resilience in Mongolia: How Laws and Policies Promote Gender Equality in Climate Change and Disaster Risk Management, June 2022. https://www.adb.org/publications/women-resilience-mongolia

228 Lkhaajav, Bolor. How the Ulaanbaatar Dialogue on Northeast Asian Security Serves as a Conflict Resolution Platform, Asia Pacific Bulletin, Number 650, 14 June 2023. https://www.eastwestcenter.org/sites/default/files/2023-06/APB%20650%20-%20How%20the%20Ulaanbaatar%20Dialogue%20on%20Northeast%20Asian%20Security.pdf

229 Khankhuu, J. The Ninth "Ulaanbaatar Dialogue" International Conference Opens, Montsame, 6 June 2024. https://montsame.mn/en/read/345467 ; Ulaanbaatar Dialogue 2025, https://ubd.iss.gov.mn/agenda

230 Government of Mongolia & UN Mongolia. Launch of the Humanitarian Country Team in Mongolia, ReliefWeb, 27 January 2011. https://reliefweb.int/report/mongolia/launch-humanitarian-country-team-mongolia

231 OCHA. Mongolia: 2024 Dzud Early Action & Response Plan, 19 February 2024, p. 17. https://www.unocha.org/publications/report/mongolia/mongolia-2024-dzud-early-action-response-plan-dec-2023-may-2024

232 Save the Children – Mongolia. Accessed 25 July 2025. https://savethechildren.mn/?page_id=12515&lang=en

233 OCHA. Mongolia: 2024 Dzud Response Plan (Dec 2023 – June 2024), Issued 25 March 2024. https://www.unocha.org/publications/report/mongolia/mongolia-dzud-response-plan-dec-2023-june-2024-issued-25-march-2024

234 World Vision - Mongolia. About Us. Accessed 25 July 2025. https://www.wvi.org/mongolia/about-us#

235 Mongolia Red Cross Society. [via Google Translate, 22 July 2025] https://redcross.mn/pages/item/5

236 Asia-Pacific Climate Change Adaptation Information Platform (AP-PLAT). Mongolian Red Cross Society Prepares for Climate-related Natural Disasters, posted 14 May 2024, updated 22 April 2025. https://ap-plat-ccca.nies.go.jp/adaptation-database/list/case-study?id=1343

237 Asia-Pacific Climate Change Adaptation Information Platform (AP-PLAT). Mongolian Red Cross Society Prepares for Climate-related Natural Disasters, posted 14 May 2024, updated 22 April 2025. https://ap-plat-ccca.nies.go.jp/adaptation-database/list/case-study?id=1343

238 IFRC. Mongolia: Helping herders survive the 'Iron Dzud', 20 May 2025. https://www.ifrc.org/article/mongolia-helping-herders-survive-iron-dzud

239 Photo credit: Mongolia Red Cross Society. Source: IFRC. Mongolia: Dzud Cold Wave - Operation Update #1 (MDRMN020), 26 April 2024.

https://reliefweb.int/report/mongolia/mongolia-dzud-cold-wave-operation-update-1-mdrmn020

240 IFRC. Mongolia bringing the law to the people! ReliefWeb, 15 January 2020. https://reliefweb.int/report/mongolia/mongolia-bringing-law-people

241 IFRC. A severe and prolonged cold spell in Mongolia – known as the 'dzud' – is taking a deep toll on rural livestock herders, 28 March 2024. https://www.ifrc.org/article/severe-and-prolonged-cold-spell-mongolia-known-dzud-taking-deep-toll-rural-livestock

242 IFRC. Mongolia: Helping herders survive the 'Iron Dzud', 20 May 2025. https://www.ifrc.org/article/mongolia-helping-herders-survive-iron-dzud

243 IFRC. Mongolia Cold Wave (Dzud) response 2024 - DREF Operation (MDRMN020), ReliefWeb, 2 February 2024, p.9. https://reliefweb.int/report/mongolia/mongolia-cold-wave-dzud-response-2024-dref-operation-mdrmn020

244 Самбууням.М. President of Mongolia Receives President of the International Committee of the Red Cross, 25 September 2024, https://montsame.mn/en/read/352309

245 ICRC. Mongolia: Promoting Humanitarian Principles at Khaan Quest 2025, 1 July 2025. https://www.icrc.org/en/article/mongolia-promoting-humanitarian-principles-khaan-quest-2025

246 OCHA. Mongolia: 2024 Dzud Response Plan (Dec 2023 – June 2024), Issued 25 March 2024. https://www.unocha.org/publications/report/mongolia/mongolia-dzud-response-plan-dec-2023-june-2024-issued-25-march-2024

247 ADRA. Mongolia - About Us. https://adra.org.mn/about-us/

248 Good Neighbors Mongolia. Accessed 25 July 2025. https://www.goodneighbors.org/country/mongolia/

249 OCHA. Mongolia: 2024 Dzud Response Plan (Dec 2023 – June 2024), Issued 25 March 2024. https://www.unocha.org/publications/report/mongolia/mongolia-dzud-response-plan-dec-2023-june-2024-issued-25-march-2024

250 CADRI Partnership. Mongolia: Diagnosis of Capacities to Manage Climate and Disaster Risk, 2024. https://www.cadri.net/system/files/2025-01/Mongolia%20Capacity%20Diagnosis%20Report%20%28English%29%20%281%29_0.pdf

251 Asian Development Bank. Civil Society Brief: Mongolia, 2019. https://www.adb.org/publications/civil-society-brief-mongolia

252 Asian Development Bank Member Fact Sheet: Mongolia, July 2025. https://www.adb.org/sites/default/files/publication/27781/mon-2024.pdf

253 JICA Mongolia Office. Profile. https://www.jica.go.jp/english/overseas/mongolia/others/__icsFiles/afieldfile/2025/03/12/jica_en.pdf

254 Mongolia NEMA. Mongolia's National Midterm Review of the Sendai Framework for Disaster Risk Reduction Report, Ulaanbaatar, 2022. https://www.preventionweb.net/publication/mongolia-voluntary-national-report-mtr-sf

255 IFRC. IFRC and CIDCA launch first joint project in Asia to strengthen climate resilience in Mongolia, 27 March 2025. https://www.ifrc.org/press-release/ifrc-and-cidca-launch-first-joint-project-asia-strengthen-climate-resilience-mongolia

256 China International Development Cooperation Agency. China, Mongolia to jointly combat desertification, 5 September 2023. http://en.cidca.gov.cn/2023-09/05/c_917585.htm

257 IATA. The Value of Air Transport to Mongolia. 2023. https://www.iata.org/en/iata-repository/publications/economic-reports/the-value-of-air-transport-to-mongolia/

258 Asian Development Bank. Low-Cost Carrier Opportunities, Air Transport Liberalization, and Post-Pandemic Recovery in CAREC. May 2024. https://www.adb.org/publications/

low-cost-carrier-air-transport-liberalization-carec

259 LogCluster. Logistics Capacity Assessment – Mongolia: 2.2 Mongolia Aviation. October 2011. https://lca.logcluster.org/22-mongolia-aviation

260 Chinggis Khaan International Airport. About Airport Cargo Terminal. Accessed 10 June 2025. https://en.ulaanbaatar-airport.mn/about-cargo-terminal

261 CAPA. Profiles: Ulaanbaatar Buyant Ukhaa International Airport. Accessed 10 June 2025. https://centreforaviation.com/data/profiles/airports/ulaanbaatar-buyant-ukhaa-international-airport-uln

262 LogCluster. Logistics Capacity Assessment – Mongolia: 1.1 Mongolia Humanitarian Background. October 2011. https://lca.logcluster.org/11-mongolia-humanitarian-background

263 LogCluster. Logistics Capacity Assessment – Mongolia: 1.3 Mongolia Customs Information. October 2011. https://lca.logcluster.org/13-mongolia-customs-information

264 Prokerala. Mongolia Airports and Lists of Airports in Mongolia – Mongolia Airport Codes. Accessed 9 June 2025. https://www.prokerala.com/travel/airports/mongolia/; OurAirports. Airports in Mongolia. Accessed 9 June 2025. https://ourairports.com/countries/MN/airports.html; SkyVector. Airports. Accessed 9-10 June 2025. https://skyvector.com/airports; METAR-TAF. Mongolia Airports. Accessed 9-10 June 2025. https://metar-taf.com/airport; Aeronautical Information Services Division, National Civil Aviation Center. eAIS Package for Mongolia. 2023. https://ais.mn/files/aip/eAIP/2023-05-04/html/index-en-MN.html; Chuanren, Chen. Mongolia's Chinggis Khaan International Eyes Growth Markets. Aviation Week. 25 March 2025. https://aviationweek.com/air-transport/airports-networks/mongolias-chinggis-khaan-international-eyes-growth-markets

265 Mongolia Maritime Administration. Division of Maritime transportation and Port utilization. 16 October 2023. https://www.monmarad.gov.mn/en/port-maritime-transportation#tab2

266 International Freight Forwarding Center of Ulaanbaatar Railways. Sea Freight. Accessed 13 June 2025. https://www.iffc.mn/en/service/30

267 CMA CGM. Intermodal: Asia – Mongolia. https://www.cma-cgm.com/assets/public/documents/INTERMODAL%20MONGOLIA.pdf

268 ADB. ADB to Support Construction of Road Network in Western Mongolia. 12 September 2023. https://www.adb.org/news/adb-support-construction-road-network-western-mongolia

269 Asian Transport Outlook. Mongolia transport sector Profile & Policy Analysis. 20 February 2024. https://asiantransportobservatory.org/documents/96/Mongolia_Transport_Climate_Profile_and_SDG_Analysis.pdf

270 GFDRR. Results in Resilience: Managing transport assets for resilience in Ulaanbaatar, Mongolia. January 2020. https://www.gfdrr.org/en/feature-story/results-resilience-managing-transport-assets-resilience-ulaanbaatar-mongolia

271 Lattimore, Owen & Harris, Chauncy D. Brittanica. Mongolia. Transportation and Telecommunications. 9 June 2025. https://www.britannica.com/place/Mongolia/Services-labour-and-taxation; Gankhuyag, Urantamir, Myagmarsuren, Altanbagana, and Altankhuyag, Bayartulga. Spatial Analysis of Road Network in Mongolia. Advances in Engineering Research, volume 206. Proceedings of the Environmental Science and Technology International Conference (ESTIC 2021). Atlantis Press. 2021. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwi3xsK5ruiNAxUlEUQIHXFzL58QFnoECEIQAQ&url=https%3A%2F%2Fwww.atlantis-press.com%2Farticle%2F125962216.pdf&usg=AOvVaw1_0WqZwu1LyRMOJETwSFh0&opi=89978449

272 ADB. ADB to Support Construction of Road Network in Western Mongolia. 12 September 2023. https://www.adb.org/news/adb-support-construction-road-network-western-mongolia

273 ADB and Asian Infrastructure Investment Bank. Asian Transport Outlook. Mongolia transport sector Profile & Policy Analysis. 20 February 2024. https://asiantransportobservatory.org/documents/96/Mongolia_Transport_Climate_Profile_and_SDG_Analysis.pdf

274 Government of Mongolia. Ministry of Road and Transport. https://www.gov.mn/en/organization/mrt

275 Gankhuyag, Urantamir, Myagmarsuren, Altanbagana, and Altankhuyag, Bayartulga. Spatial Analysis of Road Network in Mongolia. Advances in Engineering Research, volume 206. Proceedings of the Environmental Science and Technology International Conference (ESTIC 2021). Atlantis Press. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwi3xsK5ruiNAxUlEUQIHXFzL58QFnoECEIQAQ&url=https%3A%2F%2Fwww.atlantis-press.com%2Farticle%2F125962216.pdf&usg=AOvVaw1_0WqZwu1LyRMOJETwSFh0&opi=89978449

276 ADB. ADB to Support Construction of Road Network in Western Mongolia. 12 September 2023. https://www.adb.org/news/adb-support-construction-road-network-western-mongolia

277 World Bank Group. Mongolia Transport Connectivity and Logistics improvement project. https://projects.worldbank.org/en/projects-operations/procurement-detail/OP00268424

278 World Factbook. Mongolia. https://www.cia.gov/the-world-factbook/countries/mongolia/

279 Yogerst, Joe. Riding the Trans-Mongolian Railway, one of the world's most epic train journeys. CNN Travel. 14 August 2024. https://www.cnn.com/travel/guide-trans-mongolian-railway-mongolia-trains

280 Lattimore, Owen & Harris, Chauncy D. Brittanica. Mongolia. Transportation and Telecommunications. 9 June 2025. https://www.britannica.com/place/Mongolia/Services-labour-and-taxation

281 Logistics Cluster. 2.4 Mongolia Railway Assessment. https://lca.logcluster.org/24-mongolia-railway-assessment

282 Reuters. Mongolia, China announce new railway link project. 13 February 2025. https://www.reuters.com/markets/asia/mongolia-china-announce-new-railway-link-project-2025-02-14/

283 Wong, Kandy. China's rail ambitions receive another boost as Mongolia approves new line. SCMP. 8 April 2025. https://www.scmp.com/economy/china-economy/article/3305529/chinas-rail-ambitions-receive-another-boost-mongolia-approves-new-line

284 Embassy of Mongolia to the United States of America. Geography and Climate. https://mongolianembassy.us/

about-mongolia/geography-and-climate/

285 Lattimore, Owen & Harris, Chauncy D. Brittanica. Mongolia. Transportation and Telecommunications. 9 June 2025. https://www.britannica.com/place/Mongolia/Services-labour-and-taxation

286 Mongolia NEMA. Mongolia's National Midterm Review of the Sendai Framework for Disaster Risk Reduction Report, Ulaanbaatar, 2022, p. 49, https://www.preventionweb.net/publication/mongolia-voluntary-national-report-mtr-sf

287 Government of Mongolia. Vision 2050 Mongolia, p.232. https://www.vision2050.gov.mn/file/AlsiinkharaaEnglish1020.pdf

288 Mercy Corps. The Legacy of Mercy Corps Mongolia: A 22 Years Summative Report, May 2021, https://www.mercycorps.org/sites/default/files/2021-05/LegacyofMCMongolia-22YearReport-ENG.pdf

289 UNDP. Socio-economic Impact Assessment of Dzud 2023-2024: Dzud Resilience Strategy Policy Recommendations, United Nations Development Programme, Mongolia, 2025. https://www.undp.org/sites/g/files/zskgke326/files/2025-05/dzud_resilience_strategy_final_5-28.pdf

290 Asia-Pacific Climate Change Adaptation Information Platform. Early Warning System for Massive Livestock Mortality – Mongolia, published 22 March 2023, updated 8 October 2024. https://ap-plat-ccca.nies.go.jp/adaptation-database/list/case-study?id=1275

291 OCHA. Mongolia: 2024 Dzud Early Action & Response Plan, 19 February 2024. https://www.unocha.org/publications/report/mongolia/mongolia-2024-dzud-early-action-response-plan-dec-2023-may-2024

292 B. Ankhtuya. Drought Watch in Mongolia, News.MN, 21 September 2018. https://news.mn/en/784842/

293 Case Study: Operationalization of the Regional Drought Mechanism – Mongolia. SDG Help Desk, UNESCAP, 2021. https://sdghelpdesk.unescap.org/sites/default/files/2021-01/SDG%20Help%20Desk%20Case%20Study_Operationalization%20of%20the%20Regional%20Drought%20Mechanism_Mongolia.pdf

294 Kavanagh, Jack. Satellite-based system to monitor droughts/dzuds handed over to Mongolia, UN Office for Outer Space Affairs UN-SPIDER Knowledge Portal, 2 October 2018. https://www.un-spider.org/news-and-events/news/satellite-based-system-monitor-droughtsdzuds-handed-over-mongolia

295 UNESCAP. Geospatial Practices for Sustainable Development in Asia and the Pacific 2020: A Compendium, 2020. https://repository.unescap.org/server/api/core/bitstreams/59e9672e-4c7e-408b-8ec4-d610d9dc4a5d/content

296 UNESCAP. Regional Drought Mechanism, 21st Session of the Intergovernmental Consultative Committee (ICC) on the Regional Space Applications Programme for Sustainable Development (RESAP), October 2017. https://www.unescap.org/sites/default/files/6_ICC21_Regional%20Drought%20Mechanism_ESCAP.pdf#:~:text=%EF%82%A7%20Regional%20cooperative%20programme%20under%20RESAP%20to%20support,and%20services%20to%20support%20the%20management%20of%20drought.

297 World Bank. Assessing the Adaptability of Social Protection and Enhancing Herder Resilience Against Climate Shocks in Mongolia, May 2025. https://reliefweb.int/report/mongolia/assessing-adaptability-social-protection-and-enhancing-herder-resilience-against-climate-shocks-mongolia

298 Mongolia NEMA. Exchanged views on project implementation and further cooperation, 20 August 2024. http://en.nema.gov.mn/post/157945

299 Wong, Mei Yue Doris. UNDRR and GCF join hands to offer pilot training on disaster risk reduction, multi-hazard early warning systems and proposal writing for Mongolia and Bhutan, UNDRR, 9 September 2024. https://www.undrr.org/news/undrr-and-gcf-join-hands-offer-pilot-training-disaster-risk-reduction-multi-hazard-early

300 Gudjonsson, Hler (IFRC). World Meteorological Organization. Red Cross and G-Mobile launch SMS system to deliver life-saving information across Mongolia. 28 October 2015. https://www.salamancasolutions.com/red-cross-and-g-mobile-launch-sms-system-to-deliver-life-saving-information-across-mongolia/; Emergency Telecommunications Cluster. ETC Activities, Mongolia. Accessed 30 May 2025. https://www.etcluster.org/countries/mongolia.

301 ETC Emergency Telecommunications Simulation Exercise -Mongolia April 2022. 23 August 2022. https://www.etcluster.org/document/etc-emergency-telecommunications-simulation-exercise-mongolia-april-2022.

302 World Bank Group. Mongolia: Information and Communications Infrastructure Development Project. 31 March 2011. https://www.worldbank.org/en/news/feature/2011/03/31/mongolia-information-and-communications-infrastructure-development-project.

303 Developing Telecoms. Connecting the Unconnected in Mongolia- Case Study. 22 December 2017. https://developingtelecoms.com/index.php?option=com_content&view=article&id=7518:connecting-the-unconnected-in-mongolia-case-study&catid=33:wireless-networks&acm=_505.

304 United Nations Sustainable Development Group. Bridging the Digital Divide in Mongolia. 14 January 2025. https://unsdg.un.org/latest/stories/bridging-digital-divide-mongolia.

305 World Bank Group. Fixed telephone subscriptions Mongolia. Data. Accessed 30 May 2025. https://data.worldbank.org/indicator/IT.MLT.MAIN?locations=MN; Statista. Number of fixed telephone subscriptions worldwide from 2000 to 2024. Accessed 30 May 2025. https://www.statista.com/statistics/273014/number-of-fixed-telephone-lines-worldwide-since-2000/.

306 Kemp, Simon. DataReportal. Digital in Mongolia. Accessed 28 May 2025. https://datareportal.com/reports/digital-2025-mongolia.

307 Global Monitor. Mongolia Telecom Infrastructure Market Trends, Statistics, and Telecom Tower Analysis. Accessed 30 May 2025. https://www.globalmonitor.us/product/mongolia-telecom-infrastructure-market.

308 Mongolian National News Agency. Ooluun.B. Mongolia Launches 5G Network. 20 May 2025. https://w.montsame.mn/en/read/369748.

309 BBC News. Mongolia media guide. 4 September 2023. https://www.bbc.com/news/world-asia-pacific-15464297.

310 Kemp, Simon. DataReportal. Digital in Mongolia. Accessed 28 May 2025. https://datareportal.com/reports/digital-2024-mongolia.

311 Trading Economics. Mongolia – Access to Electricity (% of Population). 2025 data. Accessed 30 June 2025. https://tradingeconomics.com/mongolia/access-to-electricity-per-

cent-of-population-wb-data.html#:~:text=Access%20to%20electricity%20(%25%20of%20population)%20in%20Mongolia%20was%20reported,compiled%20from%20officially%20recognized%20sources.

312 Devex. Energy Regulatory Commission (Mongolia). 2001. Accessed 30 May 2025. https://www.devex.com/organizations/energy-regulatory-commission-mongolia-237614.

313 Seman, Ana-Maria, CEE Bankwatch Network. Mongolia's Energy Sector. Time for a rethink. 3 May 2017. Accessed 30 June 2025. https://bankwatch.org/publication/mongolias-energy-sector-time-for-a-rethink.

314 The Global Economy. Mongolia: Electricity Production Capacity. Accessed 30 June 2025. https://www.theglobaleconomy.com/Mongolia/electricity_production_capacity/.

315 Stockholm Environment Institute. Solar and wind power in Mongolia: 2024 policy overview. October 2024. https://www.sei.org/wp-content/uploads/2024/10/solar-and-wind-power-in-mongolia-2024-policy-overview-sei2024-046.pdf.

316 IEA. International Energy Agency. Mongolia. Accessed 30 June 2025. https://www.iea.org/countries/mongolia/electricity.

317 Abt Global. Building a Self-Reliant Energy Sector in Mongolia. 11 June 2024. http://abtglobal.com/insights/impact-briefs/building-self-reliant-energy-sector-in-mongolia.

318 IEA. International Energy Agency. Mongolia. Accessed 30 June 2025. https://www.iea.org/countries/mongolia/electricity.

319 Climatescope. Leaning on coal despite abundant renewable resources. Accessed 30 June 2025. https://www.global-climatescope.org/highlights/mongolia.

320 OECD. Water Demand Management in Mongolia. Highlights of a National Dialogue on Water. 19 May 2025. https://www.oecd.org/en/publications/water-demand-management-in-mongolia_de003433-en.html.

321 UNICEF. MICS. National Statistics Office of Mongolia. Mongolia Social Indicator Sample Survey -2023. Key Indicators Report. Accessed 30 May 2025. https://mics.unicef.org/sites/mics/files/2024-08/Mongolia%202023%20SISS-MICS%20Key%20Indicators%20Report_English.pdf.

322 UNICEF. MICS. National Statistics Office of Mongolia. Mongolia Social Indicator Sample Survey -2023. Key Indicators Report. Accessed 30 May 2025. https://mics.unicef.org/sites/mics/files/2024-08/Mongolia%202023%20SISS-MICS%20Key%20Indicators%20Report_English.pdf; Kouassi-Komlan, Evariste. UNICEF Mongolia. Time is now to revolutionize water usage. Op-ed dedicated to World Water Week 2023. 23 August 2023. https://www.unicef.org/mongolia/stories/time-now-revolutionize-water-usage.

323 UNICEF. MICS. National Statistics Office of Mongolia. Mongolia Social Indicator Sample Survey -2023. Key Indicators Report. Accessed 30 May 2025. https://mics.unicef.org/sites/mics/files/2024-08/Mongolia%202023%20SISS-MICS%20Key%20Indicators%20Report_English.pdf; UNICEF. Sanitation and Water for All. Mongolia. Mongolia Country Overview. Report released 2022. Accessed 25 June 2025. https://www.sanitationandwaterforall.org/sites/default/files/2022-07/2022%20Country%20Overview_Mongolia.pdf.

324 Kouassi-Komlan, Evariste. UNICEF Mongolia. Time is now to revolutionize water usage. Op-ed dedicated to World Water Week 2023. 23 August 2023. https://www.unicef.org/mongolia/stories/time-now-revolutionize-water-usage; UNICEF Mongolia. Water, sanitation and hyena (WASH) and Climate change. Clean water, air, sanitation and hygiene are vital for child development. Accessed 26 June 2025. https://www.unicef.org/mongolia/water-sanitation-and-hygiene-wash.

325 UNICEF. MICS. National Statistics Office of Mongolia. Mongolia Social Indicator Sample Survey -2023. Key Indicators Report. Accessed 30 May 2025. https://mics.unicef.org/sites/mics/files/2024-08/Mongolia%202023%20SISS-MICS%20Key%20Indicators%20Report_English.pdf.

326 P4H Network. 22 May 204. Following the adoption of the first Public Health Law, Mongolia kicked off the year of public health promotion. https://p4h.world/en/news/following-the-adoption-of-the-first-public-health-law-mongolia-kicked-off-the-year-of-public-health-promotion/.

327 Global Health Security Index. 2021 GHS Index Country Profile for Mongolia. 2021. https://ghsindex.org/country/mongolia/

328 Sustainable Development Report. Mongolia. Accessed 28 July 2025. https://dashboards.sdgindex.org/profiles/mongolia/indicators

329 WHO. World Health Organization issues recommendations to tackle health impacts of air pollution in Mongolia. 28 February 2018. https://www.who.int/mongolia/news/detail/28-02-2018-world-health-organization-issues-recommendations-to-tackle-health-impacts-of-air-pollution-in-mongolia

330 Chen, W. T., Mangal, O., Munkhbaatar, K., Vankhuu, E., Arbing, R. H., Yoshino, Y., & 2024 Sophia University Global Health Practicum Team (2025). The strength and weakness of Mongolian healthcare: from nomadic Gobi to Ulaanbaatar. Journal of global health, 15, 03015. https://doi.org/10.7189/jogh.15.03015

331 Government of Mongolia. Ministry of Health. Accessed 24 July 2025. https://www.gov.mn/en/organization/moh

332 World Health Organization. Country Cooperation Strategy. Mongolia. 2017-2021. https://iris.who.int/bitstream/handle/10665/259910/WPRO-2017-DPM-005-eng.pdf

333 World Health Organization. Mongolia: Progress towards Universal Health Coverage through strengthening primary health care. 17 December 2019. https://www.who.int/westernpacific/newsroom/feature-stories/item/mongolia-progress-towards-universal-health-coverage-through-strengthening-primary-health-care

334 Batsukh, Buyantogtokh, Bund-Ochir Khishigsaikhan, Dulamragchaa Buyanbaatar, Gerelmaa Danzan, Nansalmaa Munkhtur, Ariuntuya Ochirpurev, Takeshi Nishijima, Howard Sobel, and Masahiro Zakoji. 2022. "Urgent Actions to Save Lives When ICU Bed Needs Approach or Exceed Capacity: Lessons from Mongolia". Western Pacific Surveillance and Response 14 (5). https://doi.org/10.5365/wpsar.2022.14.5.942; Expat Financial. Mongolia Healthcare System & Insurance Options for Expats. Accessed 28 July 2025. https://expatfinancial.com/healthcare-information-by-region/southeast-asia-healthcare-system-and-insurance-options-for-expats/mongolia-healthcare-system-insurance-options-for-expats/

335 Chen, W. T., Mangal, O., Munkhbaatar, K., Vankhuu, E., Arbing, R. H., Yoshino, Y., & 2024 Sophia University Global Health Practicum Team (2025). The strength and weakness of Mongolian healthcare: from nomadic Gobi to Ulaanbaatar.

Journal of global health, 15, 03015. https://doi.org/10.7189/jogh.15.03015

336 World Health Organization. Mongolia: Progress towards Universal Health Coverage through strengthening primary health care. 17 December 2019. https://www.who.int/westernpacific/newsroom/feature-stories/item/mongolia-progress-towards-universal-health-coverage-through-strengthening-primary-health-care; World Health Organization. Integrating mobile health care to strengthen PHC in hard-to-reach communities in Mongolia. 22 June 2022. https://www.who.int/news-room/feature-stories/detail/integrating-mobile-health-care-strengthen-phc-hard-to-reach-communities-mongolia

337 Chen, W. T., Mangal, O., Munkhbaatar, K., Vankhuu, E., Arbing, R. H., Yoshino, Y., & 2024 Sophia University Global Health Practicum Team (2025). The strength and weakness of Mongolian healthcare: from nomadic Gobi to Ulaanbaatar. Journal of global health, 15, 03015. https://doi.org/10.7189/jogh.15.03015

338 Government of Mongolia. National Emergency Management Agency. Mongolia's National Midterm Review of the Sendai Framework for Disaster Risk Reduction Report. 2022. https://sendaiframework-mtr.undrr.org/publication/mongolia-voluntary-national-report-mtr-sf

339 World Health Organization. Strengthening Mongolia's National Public Health Emergency Operations Centre through training and simulation exercises. 2 April 2025. https://www.who.int/mongolia/news/detail/02-04-2025-strengthening-mongolia-s-national-public-health-emergency-operations-centre-through-training-and-simulation-exercises

340 ReliefWeb. 31 May 2023. Mongolia: Cold Wave 2023 (Snow and dust storm), DREF Operation MDRMN018. Retrieved from https://reliefweb.int/report/mongolia/mongolia-cold-wave-2023-snow-and-dust-storm-dref-operation-mdrmn018; ReliefWeb. 19 Feb 2024. Mongolia: 2024 Dzud Early Action & Response Plan (Dec 2023 – May 2024). Retrieved from https://reliefweb.int/report/mongolia/mongolia-2024-dzud-early-action-response-plan-dec-2023-may-2024.

341 PreventionWeb. Accessed 29 May 2025. National Emergency Management Agency (Mongolia). https://www.preventionweb.net/organization/national-emergency-management-agency-mongolia; UN-SPIDER. 2024. Mongolia National Emergency Management Agency (NEMA). https://un-spider.org/mongolia-national-emergency-management-agency-nema; Government of Mongolia. National Emergency Management Agency. Accessed 1 Aug 2025. http://en.nema.gov.mn/.

342 Harrison, D., Nielsen, O. & Sengupta, P. World Bank. 25 Oct. 2024. Gentle Densification: A Culturally Sensitive Approach to Modernizing Urban Living in Mongolia. https://blogs.worldbank.org/en/eastasiapacific/gentle-densification--a-culturally-sensitive-approach-to-moderni; Larkin, John. Asian Development Bank. Can Better Urban Planning Help Ulaanbaatar Glimpse a Brighter Future? 16 August 2018. https://www.adb.org/results/can-better-urban-planning-help-ulaanbaatar-glimpse-brighter-future.

343 ReliefWeb. Mongolia: Cold Wave 2023 (Snow and dust storm), Operation Update DREF Operation MDRMN019. Situation Report. Source: IFRC. 28 Aug 2023. https://reliefweb.int/report/mongolia/mongolia-cold-wave-2023-snow-and-dust-storm-operation-update-dref-operation-mdrmn018.

344 ReliefWeb. Mongolia: Cold Wave 2023 (Snow and dust storm), Operation Update DREF Operation MDRMN018. 28 Aug 2023. Retrieved from https://reliefweb.int/report/mongolia/mongolia-cold-wave-2023-snow-and-dust-storm-operation-update-dref-operation-mdrmn018; WHO (World Health Organization). 2024. Accessed 28 June 2025. Dzud in Mongolia. https://www.who.int/westernpacific/emergencies/dzud-in-mongolia.

345 ReliefWeb. 31 May 2023. Mongolia: Cold Wave 2023 (Snow and dust storm), DREF Operation MDRMN018. https://reliefweb.int/report/mongolia/mongolia-cold-wave-2023-snow-and-dust-storm-dref-operation-mdrmn018; WHO (World Health Organization). 2024. Accessed 29 June 2025. Dzud in Mongolia. https://www.who.int/westernpacific/emergencies/dzud-in-mongolia.

346 Orgil. Silk Road Mongolia. What is the Ger District of Ulaanbaatar? 8 Jan 2024. https://silkroadyurts.com/what-is-the-ger-district-of-ulaanbaatar/; U.S. State Department. (2022). 2022 Country Reports on Human Rights Practices: Mongolia. https://www.state.gov/reports/2022-country-reports-on-human-rights-practices/mongolia/.

347 Harrison, D., Nielsen, O. & Sengupta, P. World Bank. 25 Oct. 2024. Gentle Densification: A Culturally Sensitive Approach to Modernizing Urban Living in Mongolia. https://blogs.worldbank.org/en/eastasiapacific/gentle-densification--a-culturally-sensitive-approach-to-moderni; Asian Development Bank. Can Better Urban Planning Help Ulaanbaatar Glimpse a Brighter Future? 16 August 2018. https://www.adb.org/results/can-better-urban-planning-help-ulaanbaatar-glimpse-brighter-future.

348 NEMA (National Emergency Management Agency). Accessed 28 June 2025. Legal environment. http://en.nema.gov.mn/legal; IFRC (International Federation of Red Cross). Accessed 28 June 2025. Mongolia | IFRC. https://disasterlaw.ifrc.org/node/354/.

349 Mongolia Embassy US. Government and politics. Accessed 11 July 2025. https://mongolianembassy.us/about-mongolia/government-and-politics/.

350 ReliefWeb. (2017). Accessed 28 June 2025. Mongolia: Dzud - Dec 2016. https://reliefweb.int/disaster/cw-2017-000001-mng.

351 WHO (World Health Organization). (2024). Accessed 28 June 2025. Dzud in Mongolia. https://www.who.int/westernpacific/emergencies/dzud-in-mongolia.

352 UN Country Team Mongolia. Dzud Response Plan (Dec 2023 – June 2024). 25 March 2024. https://reliefweb.int/report/mongolia/mongolia-dzud-response-plan-dec-2023-june-2024-issued-25-march-2024

353 Government of Mongolia; United Nations Mongolia; United Nations Food Systems Summit 2021; UN Food and Agriculture Organization. Towards Sustainable Food Systems in Mongolia. June 2021. https://www.unfoodsystemshub.org/docs/unfoodsystemslibraries/national-pathways/mongolia/2021-09-21-en-eng_sustainablefoodsystems_mongolia_fsd_pathway-document.pdf?sfvrsn=abfc04bc_1

354 FAO, European Union, and CIRAD. Food Systems Profile – Mongolia: Catalysing the sustainable and inclusive transformation of food systems. 2022. Rome, Brussels and Montpellier. https://doi.org/10.4060/cb8153en; https://openknowledge.fao.org/server/api/core/bitstreams/08951bd9-5cd5-4094-9d3b-62cffc8b5c25/content#:~:text=the%20rural%20poor.-,2.,are%20also%20on%20the%20rise.

355 Government of Mongolia; United Nations Mongolia; United Nations Food Systems Summit 2021; UN Food and Agriculture Organization. Towards Sustainable Food Systems in Mongolia. June 2021. https://www.unfoodsystemshub.org/docs/unfoodsystemslibraries/national-pathways/mongolia/2021-09-21-en-eng_sustainablefoodsystems_mongolia_fsd_pathway-document.pdf?sfvrsn=abfc04bc_1

356 FAO, European Union, and CIRAD. Food Systems Profile – Mongolia: Catalysing the sustainable and inclusive transformation of food systems. 2022. Rome, Brussels and Montpellier. https://doi.org/10.4060/cb8153en; https://openknowledge.fao.org/server/api/core/bitstreams/08951bd9-5cd5-4094-9d3b-62cffc8b5c25/content#:~:text=the%20rural%20poor.-,2.,are%20also%20on%20the%20rise.

357 Government of Mongolia; United Nations Mongolia; United Nations Food Systems Summit 2021; UN Food and Agriculture Organization. Towards Sustainable Food Systems in Mongolia. June 2021. https://www.unfoodsystemshub.org/docs/unfoodsystemslibraries/national-pathways/mongolia/2021-09-21-en-eng_sustainablefoodsystems_mongolia_fsd_pathway-document.pdf?sfvrsn=abfc04bc_1

358 FAO, European Union, and CIRAD. Food Systems Profile – Mongolia: Catalysing the sustainable and inclusive transformation of food systems. 2022. Rome, Brussels and Montpellier. https://doi.org/10.4060/cb8153en; https://openknowledge.fao.org/server/api/core/bitstreams/08951bd9-5cd5-4094-9d3b-62cffc8b5c25/content#:~:text=the%20rural%20poor.-,2.,are%20also%20on%20the%20rise.

359 Eternal Landscapes Mongolia. Mongolian Herding Calendar. Accessed 18 June 2025. https://www.eternal-landscapes.co.uk/the-mongolian-herding-calendar/; UN OCHA. Mongolia: Dzud Response Plan (Dec 2023 – June 2024). 25 March 2024. https://www.unocha.org/publications/report/mongolia/mongolia-dzud-response-plan-dec-2023-june-2024-issued-25-march-2024

360 UN Country Team Mongolia. Dzud Response Plan (Dec 2023 – June 2024). 25 March 2024. https://reliefweb.int/report/mongolia/mongolia-dzud-response-plan-dec-2023-june-2024-issued-25-march-2024

361 Fitzgibbon, C. and Crosskey, A. Disaster risk reduction management in the drylands in the Horn of Africa. Brief prepared by a Technical Consortium hosted by CGIAR in partnership with the FAO Investment Centre. Technical Consortium Brief 4. Nairobi: International Livestock Research Institute. 2013. https://repo.mel.cgiar.org/handle/20.500.11766/5197

362 UNDRR. Terminology. Accessed 8 September 2022. https://www.undrr.org/terminology

363 European Commission. Disaster Risk Management Knowledge Centre (DRMKC). INFORM. Accessed 30 January 2023. https://drmkc.jrc.ec.europa.eu/inform-index

364 European Commission. Disaster Risk Management Knowledge Centre (DRMKC). INFORM Global Risk Index. Methodology. https://drmkc.jrc.ec.europa.eu/inform-index/InDepth/Methodology

365 European Commission. Disaster Risk Management Knowledge Centre (DRMKC). INFORM Risk Methodology. https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Methodology

366 European Commission. Disaster Risk Management Knowledge Centre (DRMKC). INFORM Risk Results and Data 2025 – 2nd Edition. Accessed 28 May 2025. https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Results-and-data

367 European Commission. Disaster Risk Management Knowledge Centre (DRMKC). INFORM Country Risk Profile 2025 – Mongolia. Accessed 28 May 2025. https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Risk-Profile

368 U.S. Department of State. U.S.-Mongolia Relations. 1 August 2024. https://2021-2025.state.gov/u-s-mongolia-relations/ ; U.S. Embassy in Mongolia. History of the U.S. and Mongolia. https://mn.usembassy.gov/our-relationship/policy-history/

369 USAID. The United States announces nearly $13 million to advance a prosperous, secure, and resilient Mongolia. 11 August 2023. https://reliefweb.int/report/mongolia/united-states-announces-nearly-13-million-advance-prosperous-secure-and-resilient-mongolia

370 U.S. Department of State. U.S.-Mongolia Relations. 1 August 2024. https://2021-2025.state.gov/u-s-mongolia-relations/

371 USAID. United States Provides Dzud Assistance to Additional 2,000 Herder Households. 16 March 2024. https://reliefweb.int/report/mongolia/united-states-provides-dzud-assistance-additional-2000-herder-households

372 USAID. Mongolia Assistance Overview, June 2024. 7 June 2024. https://reliefweb.int/report/mongolia/mongolia-assistance-overview-june-2024

373 U.S. Embassy in Mongolia. Civil Military Support Element Advanced Medical First Responder Training held in Khentii province. 22 November 2022. https://mn.usembassy.gov/pr-112222/?_ga=2.77941076.1100357114.1748988930-1933793894.1702512623

374 97 Civil Affairs. Instagram. https://www.instagram.com/p/CUc7kYyKxzq/

375 U.S. Embassy in Mongolia. U.S. Embassy Civil-Military Support Element Donates PPE for Frontline Workers. March 2021. https://www.pacom.mil/Media/News/News-Article-View/Article/2526935/us-embassy-civil-military-support-element-donates-ppe-for-frontline-workers/

376 U.S. Embassy in Mongolia. United States Donates 2000 Medical Devices to Mongolia to Help Combat Flu-Like Illness. 8 January 2025. https://mn.usembassy.gov/pr-010825/

377 Embassy of Mongolia to the United States of America. Defense Cooperation. https://mongolianembassy.us/defense-and-military-cooperation/#:~:text=The%20US%20expertise%20and%20material,Mongolian%20Armed%20Forces%27%20peacekeeping%20capabilities ; U.S. Department of State. U.S.-Mongolia Relations. 1 August 2024. https://2021-2025.state.gov/u-s-mongolia-relations/

378 Garamone, Jim. U.S., Mongolia Discuss Military-to-Military Relations During Pentagon Visit. DoD News. 3 August 2023. https://www.defense.gov/News/News-Stories/Article/Article/3482715/us-mongolia-discuss-military-to-military-relations-during-pentagon-visit/

379 U.S. Embassy in Mongolia. United States to Build New Emergency Operations Center in Partnership with National Emergency Management Agency. 1 October 2023. https://mn.usembassy.gov/pr-093023/?_ga=2.146173428.1100357114.1748988930-1933793894.1702512623

380 USACE - Alaska District. Engineers help to improve

educational opportunities in Mongolia. 30 July 2021. https://www.poa.usace.army.mil/Media/News-Releases/Article/2714977/engineers-help-to-improve-educational-opportunities-in-mongolia/

381 McLeod, Cameron. USACE completes handover of newly constructed kindergarten building in Mongolia. 17 September 2024. https://www.pacom.mil/Media/NEWS/Article/3907807/usace-completes-handover-of-newly-constructed-kindergarten-building-in-mongolia/

382 Alaska Guardsmen Depart for Mongolia. 15 June 2018. https://www.pacom.mil/Media/News/Article/1552051/alaska-guardsmen-depart-for-mongolia/

383 Email correspondence with Major Aspelund, SPP Director, Alaska National Guard, 21 August 2025.

384 Avey, Julie. Cyber Excellence for a safer World, Alaska Air Guard partnership with Mongolia. 15 January 2025. https://www.dvidshub.net/news/489151/cyber-excellence-safer-world-alaska-air-guard-partnership-with-mongolia#:~:text=The%20training%2C%20part%20of%20the,and%20subject%2Dmatter%20expert%20exchanges.

385 Avey, Julie. Alaska National Guard, Mongolia Strengthen Partnership. 27 September 2024. https://www.nationalguard.mil/News/State-Partnership-Program/Article/3919031/alaska-national-guard-mongolia-strengthen-partnership/

386 Photo by U.S. Air National Guard Senior Master Sgt. Julie Avey. 19 September 2024. DVIDS. https://www.dvidshub.net/image/8664159/alaska-guardsmen-host-mongolia-strengthen-military-military-partnership

387 USAID. Mongolia Assistance Overview, June 2024. 7 June 2024. https://reliefweb.int/report/mongolia/mongolia-assistance-overview-june-2024

388 USAID. USAID rolls out U.S. government-facilitated pediatric COVID-19 vaccines worldwide. 21 June 2022. https://reliefweb.int/report/mongolia/usaid-rolls-out-us-government-facilitated-pediatric-covid-19-vaccines-worldwide

389 U.S. Embassy in Mongolia. U.S. Embassy Civil-Military Support Element Donates PPE for Frontline Workers. March 2021. https://www.pacom.mil/Media/News/News-Article-View/Article/2526935/us-embassy-civil-military-support-element-donates-ppe-for-frontline-workers/

390 U.S. Embassy in Mongolia. USAID Announces Five-Year Strategy for Mongolia. https://mn.usembassy.gov/pr-041823/

391 Caballero, Kelsea. Multinational Humanitarian Exercise 'Pacific Airlift Rally 25' Begins in Mongolia. 8 May 2025. https://www.pacom.mil/Media/NEWS/News-Article-View/Article/4179470/multinational-humanitarian-exercise-pacific-airlift-rally-25-begins-in-mongolia/ ; Caballero, Kelsea. Pacific Airlift Rally 25 concludes with strengthened partnerships. 9 May 2025. https://www.dvidshub.net/news/498280/pacific-airlift-rally-25-concludes-with-strengthened-partnerships

392 Photo by U.S. Air Force Staff Sgt. Kelsea Caballero. Pacific Airlift Rally 25 strengthens airfield operations in Mongolia. DVIDS. 6 May 2025. https://www.dvidshub.net/image/9020931/pacific-airlift-rally-25-strengthens-airfield-operations-mongolia

393 USINDOPACOM. U.S. Indo-Pacific Command Concludes Second Indo-Pacific Regional Military Gender Advisor Course. 1 October 2024. https://www.pacom.mil/Media/News/News-Article-View/Article/3923322/us-indo-pacific-command-concludes-second-indo-pacific-regional-military-gender/

394 Brandenburg, Joshua. Multilateral Peacekeeping Khaan Quest 24 kicks off with opening ceremony. 29 July 2024. https://www.pacom.mil/Media/News/News-Article-View/Article/3856005/multilateral-peacekeeping-khaan-quest-24-kicks-off-with-opening-ceremony/

395 Brandenburg, Joshua. Khaan Quest 24 Successfully ends with closing ceremony. 12 August 2024. https://www.pacom.mil/Media/News/News-Article-View/Article/3870208/khaan-quest-24-successfully-ends-with-closing-ceremony/

396 Brandenburg, Joshua. Multilateral Peacekeeping Khaan Quest 24 kicks off with opening ceremony. 29 July 2024. https://www.pacom.mil/Media/News/News-Article-View/Article/3856005/multilateral-peacekeeping-khaan-quest-24-kicks-off-with-opening-ceremony/

397 US Army Pacific Kicks off Khaan Quest 23 in Mongolia, Strengthening International Cooperation. 22 June 2023. https://www.pacom.mil/Media/News/News-Article-View/Article/3436275/us-army-pacific-kicks-off-khaan-quest-23-in-mongolia-strengthening-internationa/

398 U.S. Embassy in Mongolia. Exercise Khaan Quest 2022. 7 June 2022. https://www.pacom.mil/Media/News/News-Article-View/Article/3055347/exercise-khaan-quest-2022/

399 USINDOPACOM. Strengthening Military-Civilian Relations and Partnerships on Global Health Security. 17 June 2024. https://www.pacom.mil/Media/News/News-Article-View/Article/3809957/strengthening-military-civilian-relations-and-partnerships-on-global-health-sec/

400 USINDOPACOM Public Affairs Office. Tempest Express Builds Multinational Crisis Response Capabilities. 23 May 2024. https://www.pacom.mil/Media/News/News-Article-View/Article/3786873/tempest-express-builds-multinational-crisis-response-capabilities/

401 Granado, Victoria. Exercise Gobi Wolf 2022 kicks off with opening ceremony. 6 September 2022. https://www.army.mil/article/259987/exercise_gobi_wolf_2022_kicks_off_with_opening_ceremony

402 O'Neal, Balinda. Exercise Gobi Wolf 2024 Begins in Heart of Mongolian Steppe. 8 May 2024. https://www.nationalguard.mil/News/Articlegh-View/Article/3768294/exercise-gobi-wolf-2024-begins-in-heart-of-mongolian-steppe/ ; O'Neal, Balinda. Gobi Wolf 2024 strengthens partnerships for disaster resilience. 20 May 2024. https://www.pacom.mil/Media/News/News-Article-View/Article/3782159/gobi-wolf-2024-strengthens-partnerships-for-disaster-resilience/

403 Photo by Balinda O'Neal, Capt. 134th Public Affairs Detachment. Gobi Wolf 2024 strengthens partnerships for disaster resilience. U.S. Embassy in Mongolia. https://mn.usembassy.gov/pr-052024/

404 Granado, Victoria. Exercise Gobi Wolf 2022 kicks off with opening ceremony. 6 September 2022. https://www.army.mil/article/259987/exercise_gobi_wolf_2022_kicks_off_with_opening_ceremony

405 Pike, Jimmie D. Mongolian Armed Forces Attend Airmen-to-Airmen Talk at Pacific Air forces. 14 June 2023. https://www.pacom.mil/Media/NEWS/Article/3428207/mongolian-armed-forces-attend-airmen-to-airmen-talk-at-pacific-air-forces/

406 Nechanicky, Grace. Alaska National Guard conducts subject matter expert exchanges with Mongolian Air Force counterparts. Joint Force Headquarters Public Affairs. 3 February 2022. https://ak.ng.mil/Media/News/ Article/2923095/alaska-national-guard-conducts-subject-matter-expert-exchanges-with-mongolian-a/

407 Redin, Alexis. Pacific Angel 23-2 enhances capabilities, strengthens partnerships. 28 August 2023. https://www.dvidshub.net/news/453103/pacific-angel-23-2-enhances-capabilities-strengthens-partnerships

408 Curtis, DeAndre. Pacific Angel 24-1 kicks off in Papua New Guinea. 26 August 2024. https://www.pacaf.af.mil/News/Article-Display/Article/3888440/pacific-angel-24-1-kicks-off-in-papua-new-guinea/

409 Lauren, Woods. Pacific Angel 22-2 Strengthens Ties with Indo-Pacific Allies and Partners. 25 August 2022. https://www.pacom.mil/JTF-Micronesia/JTF-Micronesia-news/Article/3140030/pacific-angel-22-2-strengthens-ties-with-indo-pacific-allies-and-partners/

410 Leasure, William. US Army advisors strengthen partnership with Mongolia. 5 April 2023. https://www.army.mil/article/265513/us_army_advisors_strengthen_partnership_with_mongolia

411 U.S. Embassy in Mongolia. U.S. Army Civil Affairs Team and Khuvsgul Local Emergency Management Agency Training on Water Rescue. 8 July 2022. https://www.pacom.mil/Media/News/News-Article-View/Article/3088056/us-army-civil-affairs-team-and-khuvsgul-local-emergency-management-agency-train/

412 USINDOPACOM. U.S. and Mongolia Successfully Conduct Khangai-21 Disaster Response Exercise. 27 September 2021. https://www.pacom.mil/Media/News/ News-Article-View/Article/2790306/us-and-mongolia-successfully-conduct-khangai-21-disaster-response-exercise/



Center for Excellence in Disaster Management & Humanitarian Assistance
456 Hornet Avenue, Building 76, Joint Base Pearl Harbor - Hickam, Hawaii 96860-3503
Telephone: 808.472.0518 | DSN: 315.472.0518
https://www.cfe-dmha.org
@cfedmha